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Full Name of Author — Nom complet de l'auteur

Raghubar D. Sharma

Date of Birth — Date de naissance	Country of Birth — Lieu de naissance
4.4.1947	India

Permanent Address — Résidence fixe

1 Fountainhead Road,
Apt. 106,
Downsview, Ontario. Canada
M3J 1K6

Title of Thesis — Titre de la thèse

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1980	Dr. P. Krishnan

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THE UNIVERSITY OF ALBERTA

MIGRATION AND FERTILITY IN A WESTERN CANADIAN METROPOLIS

by

© RAGHUBAR D. SHARMA

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled MIGRATION AND FERTILITY IN A WESTERN CANADIAN METROPOLIS submitted by Raghubar D. Sharma in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Sociology.

.....
Supervisor

.....

.....

.....

.....
External Examiner

Date March 6, 1980

To my brethern:

But for them, I would have never come this far.

ABSTRACT

This study attempts to examine and explain the fertility among native-born and foreign-born married women of 18 - 54 years of age living in Edmonton, Alberta, Canada, during 1973-74.

It is shown that these two groups of women exhibit differential patterns of relationship within family size and background (socio-cultural, economic and demographic) factors. As a result of differences in background factors, native-born and foreign-born women place differential fertility values on intermediate variables such as use and non-use of contraception to regulate their fertility. The differential acquisition of fertility values results in differential fertility among the native-born and the foreign-born.

The current family size of foreign-born women is higher than that of the native-born, but expected and desired family size is smaller among the foreign-born than among the native-born. Among the native-born, the Maritime-born have the largest family size followed in descending order by that of those born in Ontario, British Columbia, Saskatchewan, Alberta, Quebec and Manitoba. The notion that migration affects fertility in a negative direction is only true in the case of "short distance" internal migrants.

Data on foreign-born women support the hypothesis that immigrant women from higher fertility areas have higher fertility.

The age structure turns out to be a crucial factor in explaining fertility differentials by nativity. The year of migration is associated with the level of fertility of migrant women. The nativity

of the respondent's parents accounts for the variability in current family size, but not in expected and desired family size. The differentials in current fertility by generation are also noted. The younger foreign-born women have lower fertility than the native-born, whereas older foreign-born women have fertility very close to their native-born counterpart.

A multiple classification analysis shows that the patterns of relationship between current fertility and background factors differ by nativity.

Among native-born women, age and age at first parity show a stronger relation with current family size than does income. Family income is more strongly related than age and age at first parity with current family size of the foreign-born women. Family income is directly related to current family size of native-born women and it is inversely related to current family size of the foreign-born women.

The influence of religion is more pronounced on the fertility of native-born women than it is on that of the foreign-born. Controlling for the influence of the other background variables, among the native-born group, it is seen that the rural-bred have a smaller family size than those who grew up in the town or the city. The rural-urban differential in current family size is narrower among native-born women as compared to the foreign-born. The relationship between the last occupation and current family size is roughly direct among the native-born women and roughly u-shaped among the foreign-born women.

Age at first marriage, abortion and sterility do not exhibit significant differentials by nativity. But there are differentials by

nativity in the attitude towards contraception and abortion, and in the knowledge of the effectiveness of various contraception. The native-born women tend to have a liberal attitude towards contraception and abortion. It is seen that non-Catholic foreign-born women are less likely to use contraception than their native-born counterparts. This may be the reason for the native-born women having slightly lower fertility than the foreign-born women.

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TABLE OF CONTENTS

Chapter			Page
1.	INTRODUCTION		1
	1.1	The Problem.	1
	1.2	Statement of the thesis.	2
	1.3	Selectivity in migration	2
	1.4	Migration and fertility.	6
	1.5	International literature	7
	1.6	American literature.	8
	1.7	Canadian literature.	11
	1.8	Outline of the thesis.	18
2.	MIGRATION AND FERTILITY: A THEORETICAL APPROACH.		19
	2.1	Laws of migration.	19
	2.2	A general typology of migration.	22
	2.3	Theoretical framework.	22
	2.4	First group of hypotheses.	29
	2.5	Second group of hypotheses	29
3.	DATA AND METHOD		31
	3.1	Introduction	31
	3.2	GAFS data.	31
	3.3	Sampling frame	32
	3.4	The characteristics of GAFS households	33
	3.5	The study sample	33
	3.6	The fertility measure adopted.	38
	3.7	Statistical techniques used.	40
4.	DIFFERENTIALS IN FERTILITY BY MIGRATION STATUS.		43
	4.1	Introduction	43
	4.2.1	Foreign-born vs. native-born	43
	4.2.2	Place of birth	43
	4.3	Distance and family size	46
	4.4	Age.	49
	4.5	Year of migration.	52
	4.6	Generational differences in fertility.	54
	4.7	Summary.	59

Chapter		Page
5.	BACKGROUND FACTORS AND FERTILITY DIFFERENTIALS BY NATIVITY.	62
5.1	Introduction	62
5.2	Selected background factors.	63
5.3	Background factors and current family size by nativity	68
5.4	Summary.	82
6.	THE ROLE OF INTERMEDIATE VARIABLES.	83
6.1	Introduction	83
6.2	Data problems.	83
6.3	Use and non-use of contraceptives.	84
6.3.1	Knowledge of birth control	91
6.3.2	Use of birth control	96
6.4	Age at first marriage.	96
6.5	Abortion	98
6.6	Sterility.	102
6.7	Multiple Classification Analysis (MCA)	105
6.8	Summary.	111
7.	SUMMARY AND CONCLUSIONS	112
7.1	Data limitations and suggestions for further research	120
REFERENCES		122
APPENDIX		128

LIST OF TABLES

Table		Page
1.1	Number of live-born children per 1,000 women living with their husbands, by age of woman, type of residence and country of birth of wife and husband, Canada, 1961.	12
1.2	Number of live-born children per 1,000 women ever married by age and period of immigration of women, Canada, urban, 1961.	14
1.3	Mean number of actual and expected births, by religion and nativity of wife, for Toronto	16
1.4	Mean number of actual, expected and desired births, by nativity of wife, for Toronto	17
3.1	Results of contacts, GAFS, Edmonton	32
3.2	Age distribution, GAFS, Edmonton.	34
3.3	Marital status distribution, GAFS, Edmonton	35
3.4	Distribution of women by place of birth, GAFS, Edmonton . .	36
3.5	Distribution by distance of birth place from Edmonton . . .	37
3.6	Age distribution by nativity, GAFS, Edmonton.	37
4.1	Mean family size by nativity of married women (18-54), GAFS, Edmonton.	44
4.2	Family size by place of birth of married women (18-54), GAFS, Edmonton.	45
4.3	Family size by distance for native-born married women, GAFS, Edmonton.	47
4.4	Current family size by age of respondents (18-54), GAFS, Edmonton.	50
4.5	Total expected family size by age of respondents (18-54), GAFS, Edmonton.	50
4.6	Desired family size by age of respondents (18-54), GAFS, Edmonton.	51
4.7	Mean family size by year of immigration for married women (18-54), GAFS, Edmonton	53
4.8	Family size by nativity of respondent's parents, GAFS, Edmonton.	55

Table		Page
4.9	Family size by generation of respondents, GAFS, Edmonton.	57
4.10	Current family size by generation and age, GAFS, Edmonton.	60
4.11	Total expected family size by generation, GAFS, Edmonton.	60
4.12	Desired family size by generation and age, GAFS, Edmonton.	60
5.1	Correlation and association coefficients between background factors and current family size of native-born, GAFS, Edmonton.	69
5.2	Correlation and association coefficients between background factors and current family size of foreign-born, GAFS, Edmonton.	71
5.3	Summary of multiple classification analysis (MCA) relating selected background factors to current family size of native-born women, GAFS, Edmonton	73
5.4	Summary of multiple classification analysis (MCA) relating selected background variables and current family size of foreign-born women, GAFS, Edmonton.	74
5.5	A comparison of correlation and association coefficients between background factors and current family size of native-born and foreign-born women, GAFS, Edmonton.	79
5.6	Current family size and respondent's religion, GAFS, Edmonton.	80
5.7	Current family size and respondent's rural-urban background.	80
5.8	Current family size and respondent's last occupation, GAFS, Edmonton.	81
5.9	Current family size and respondent's education, GAFS, Edmonton.	81
6.1	Approval of birth control by nativity of married women, GAFS, Edmonton.	87
6.2	Individual reasons for the approval of birth control by nativity, GAFS, Edmonton.	88

Table		Page
6.3	The social reasons for the approval of birth control by nativity, GAFS, Edmonton.	90
6.4	Husband's approval of birth control by nativity of wife, GAFS, Edmonton.	92
6.5	Knowledge of safe period, GAFS, Edmonton.	93
6.6	Knowledge of contraceptive effectiveness, GAFS, Edmonton.	95
6.7	Birth control method most used by nativity of women, GAFS, Edmonton.	97
6.8	Age at first marriage of women by nativity, GAFS, Edmonton.	100
6.9	Abortions by nativity, GAFS, Edmonton	101
6.10	The attitude of married women towards abortion by nativity, GAFS, Edmonton.	103
6.11	Sterility by nativity of women, GAFS, Edmonton.	104
6.12	Summary of multiple classification analysis (MCA) relating selected intermediate variables and current family size of native-born women, GAFS, Edmonton.	108
6.13	Summary of multiple classification analysis (MCA) relating selected intermediate variables and current family size of foreign-born women, GAFS, Edmonton.	109

CHAPTER 1

INTRODUCTION

1.1 The Problem

The present study examines and attempts to explain the fertility differentials among the native-born and the foreign-born women of Edmonton, Alberta, Canada. The focus of this inquiry is: how large are these differentials? Why do these differentials occur? An attempt has been made to tackle these questions with the help of an existing framework of fertility. This framework, popularly known as "the intermediate variables framework of fertility", was formulated by K. Davis and J. Blake (1956). According to this, societies differ in their social organization. Due to differentials in social organization, different societies use different kinds and different levels of intermediate variables to regulate fertility. These eleven intermediate variables are discussed elsewhere in this chapter.

The purpose of any comparative study is first, to identify determinants and then study causation. One way to study the causal factors involved is through the examination of differentials in sub-groups (Goldscheider, 1971:226). In sociology, these differentials are studied with the help of a theoretical framework.

In this study, the two sub-groups, the native-born and the foreign-born women are treated analogous to the sub-societies of the David-Blake framework. The sub-groups differ in their demographic, socio-cultural, and economic backgrounds. Hence, they utilize different

patterns of intermediate variables to regulate their fertility.

1.2 Statement of the thesis

It is widely noted that the fertility of immigrants (foreign-born) differs from that of the non-migrants (native-born). This study analyzes systematically, with the use of a theoretical framework, the differences between the fertility of foreign-born and native-born women aged 18-54 years in the city of Edmonton.

Women from different regions of birth differ in regard to socio-cultural (religion and rural-urban), economic (education, income and occupation), and demographic (age, and age at first marriage) background. Due to the differences in these factors, the foreign-born and the native-born women acquire different fertility values (low or high fertility) for the various intermediate variables, such as age at first marriage, use/non-use of contraception, abortion, and intrauterine mortality. Also both groups single out different types of intermediate variables for this purpose. The differential acquisition of fertility values and the differential patterns of employing intermediate variables for acquiring different fertility values cause differentials in fertility between these two groups.

1.3 Selectivity in migration

Studies have shown that migration is selective on the basis of age, sex, marital status, family status and occupation, etc. Therefore, migrants are not a random sample of the population and are bound to differ from the native-born population. This selectivity is likely to affect their choice of intermediate variables to regulate

fertility. Migrants differ from non-migrants in terms of many demographic attributes such as age sex, family status. and possibly, in intelligence, mental health, and independence of character (Peterson, 1972). The process of self-selection of migrants according to various social and demographic attributes is called "migratory selection" or "selective migration".

The most firmly established generalization in demography is that both internal and international migrants are young adults. According to Ferenczi (1929:212-213), between two-thirds to four-fifths of the migrants to the United States in the nineteenth century were between fifteen to forty years old. In the case of internal migrants, Duncan and Reis (1956:83-87) report the median ages of those who moved within the United States, were between 19.8 and 30.5. One reason would be that migration involves certain amounts of adjustment at the destination and the young usually have a better ability to adapt, and secondly, if the movement is in the search of a job, then the young, newly employed, are more likely to migrate (Petersen, 1972:262).

The sex selectivity in migration depends on the nature of migration. Ravenstein (1885-89 cf. Lee, 1966) noted that "females are more migratory than males", and that this was more true for short distances than for long distances. The local movement that Ravenstein referred to, was made in large part by young rural girls who found work as domestic servants in middle-class homes in urban areas (Thomlinson, 1976). According to the available evidence, for both international and internal migration involving long distances, males are selectively favoured and in the case of relatively short distance moves, such as rural-urban migration within a region, females predominate (Thomlinson, 1976:324).

In the case of voluntary migration, usually the young and the unmarried predominate. This has been true in the case of male pioneers and female domestic servants (Petersen, 1972).

Professional men have above average mobility rate, while unskilled and semiskilled are among the least mobile segment of the society. Ladinsky (1967) reported from a study of the 1960 census data in the United States:

> (1) Professions that require heavy investments in capital equipment and close cultivation of clientele have low migration rates; (2) salaried professions with short organizational hierarchies, low rates of managers, and centralized work units have high migration rates; (3) salaries professions with unstandardized work conditions, no state licensing, and strong occupational communication networks have high long-distance migration rates; (4) salaried workers in highly professional occupations move in national and regional rather than local labour markets.

Occupational self-selection operating in the form of the so called "brain drain" international migration of the highly qualified, has become something of an international issue (Petersen, 1972:268).

Whether selection takes place in international migration by intelligence is still debatable. Studies so far conducted prove either way (Petersen, 1972:271-272). Some studies have tried to prove that urbanization selected the more intelligent of the rural population; and in other studies, this conclusion has been challenged. In some studies on I.Q., many international migrants scores lower; a reason for this may be inadequate knowledge of the English language and American culture. Whether migrants score more than non-immigrants, still remains to be proven. Richmond (1967) in his study of post-war immigrants also reports selectivity on the bases of age, sex, and

marital status. He reports that 87 per cent of the respondents (excluding dependents) were male, about 42 per cent of the whole sample were single, and about two-fifths of the immigrants between 25 and 34 years of age at the time of their entry into Canada. He further points out that the educational standard of immigrants was, in most cases, comparable to, or above that of the Canadian-born population (p. 40) and that half of the immigrants from the United Kingdom. but only a quarter of those from other countries, were formally in non-manual or white-collar occupations (p. 41).

In virtually all cases, adolescents and adults predominate, but with respect to other attributes - sex, occupation, possibly mental health and intelligence - selection seems to depend on conditions at the destination rather than on those at the origin (Petersen, 1972).

George (1970:187-188) in the summary of his study of internal migration in Canada, also notes selectivity of migrants by sex, age, and marital status. He finds increased internal migration among females, persons between the ages 20 and 29 years, and among the married.

Internal migration is usually influenced by events taking place in the life cycle of people. According to Stone (1978:18) in Canada, (i) adults in the peak age of family formation (i.e. 20-34 years of age) show mobility rates far above the national rates, (ii) single have the lowest mobility among all marital statuses, and (iii) inter-municipal mobility rises with education level. He further notes that the native-born Canadians are found to have a higher mobility rate than the foreign-born, even after age composition differences are taken into account. Stone points out that recent migrants (who resided outside of Canada on June 1, 1966), like the

internal migrants, were predominantly young adults, a majority of them having university training and professional occupations and hyper-mobile.

Many studies dealing with migratory selection are implicitly based on one assumption: that all migrants choose whether or not to move and that they make their own choice in response to socio-economic forces (Petersen, 1972:270). Whether it is the migration of domestic servants or that of highly qualified professionals, economic motivation turns out to be a major factor in voluntary migration.

Due to the economic motivation factor, voluntary migration tends to be selective of age, sex, and marital status, etc. In the case of domestic servants, migrants tend to be females, and in the case of long-distance movements, young adult males. The persons in younger age groups migrate in search of work. In a survey conducted by the United States Bureau of the Census, to take up a job and to look for work were cited as the major reasons for moving (Petersen, 1972:269-70).

1.4 Migration and fertility

Research in recent years has shown that the fertility of inter-regional and international migrants differs from that of native-born women. There is a need for greater understanding of these differentials and the factors which influence them.

There are basically three types of migration which we come across in the literature on fertility. These are: rural-urban, internal (inter-regional and inter-provincial), and international. A wide range of literature is available on rural-urban migration affect-

ing fertility. But the number of studies done on inter-provincial and international migration with respect to fertility, remains meagre. The main focus of this study is on the fertility of immigrants, though differentials in the fertility of inter-provincial migrants is also discussed.

1.5 International literature

Blake (1961) points out in her work on Jamaica, that it is the unstable nature of sexual unions which resulted in lower fertility in that country. According to Marino (1971), male emigration results in an increase of unmated, and childless women; and he further stresses that in a monogamous society, male scarcity forces the average age at entry into sexual union for the females to rise. This has a negative effect on fertility.

There has been little work done on the impact of emigration on fertility. Ebanks et al (1975) suggest that in Barbados, emigration contributes to fertility decline because it reduces the number of inhabitants (i.e. removes potential and actual fertility) and produces a grossly disproportionate sex ratio that affects the formation of sexual union.

It appears from the studies of Ebanks et al (1974) and Marino (1971) that the lower fertility in the British Caribbean is a result of male emigration rather than union instability.

Rele and Kanitkar (1974) found that in Greater Bombay, India, education level is lowest among rural migrants (originating from rural area), where fertility is highest; and it is highest among urban migrants where fertility is lowest. They further assert that, even

when educational attainment is controlled, the direction of differentials persist. Non-migrants are found to have higher fertility for the upper two of the three given educational levels. The trend is reversed for the age group 40 years and above - non-migrants have lower fertility than migrants. This finding is consistent with that of Macisco et al (1969) on Puerto Rico. The study by Rele and Kanitkar (1974) shows that migration and fertility have an association which is independent of educational level.

Halli's (1976) analysis also points out that fertility pattern in Greater Bombay is inverse by the type of migration (rural to urban, urban to urban, and urban to rural).

According to Zarate and Zarate (1976), inconsistencies in the findings on migrant fertility are due to three reasons: (i) lack of precautions while comparing findings from different research procedures; (ii) an absence of systematic and organizing schemes; (iii) failure to evaluate findings in either historical or comparative perspectives. They contend, for example, that the findings from the Indianapolis survey (that deals with childbearing prior to the U.S. Depression) are given the same weight as results obtained in the 1960's and comparisons are frequently extended to countries with markedly dissimilar cultural backgrounds (such as Puerto Rico, the U.S.A., Latin America and Asian countries).

1.6 American literature

Zarate and Zarate (1975:115-156) reviewed the literature on migrant and non-migrant fertility and found that studies on migrant fertility date back prior to World War II (Thomas, 1938) and in the U.S.

as early as 1938 (Kiser, 1938). In his study Kiser (1938) reported that the fertility of the native whites of the United States who moved to the cities from villages and rural areas, was higher than that of the city-born.

In the Indianapolis survey also the "urban" migrant couples were found to have lower fertility than the Indianapolis natives, and rural migrants were found to have higher fertility than either (Kantner and Whelpton, 1952). In the 1955 Growth of American fertility survey, the fertility of those couples, of whom either spouse had farm experience, was only slightly higher than couples with no farm experience (Freedman et al, 1959). From the national survey, Freedman, Golberg and Slesinger (1963) noted that the small differential observed in 1955 had all but disappeared. Ritchey and Stokes (1972) found the size of "place of origin" was associated with fertility, and noted that except for medium-size cities, rural migrants had higher fertility more often than the urban migrants, also urban to urban migrants were found to have the lowest fertility and non-migrants were found to have an intermediate level of fertility.

Rosenwaike's (1973) research on the two generation Italians in America is of relevance to this study. She argues that the first-generation Italian women brought with them the old country pattern of high fertility, which sharply contrasts with the low fertility levels of the American-born. It is shown that the second-generation Italian women had limited their childbearing to levels even below those of the other native Americans living in larger cities. She points out that, if fertility is a variable indicative of social change, then this group assimilated to the patterns of their new environment within the space of

one generation. In fact, her study is a source of inspiration to our hypothesis that the second generation migrants have fertility levels very similar to those of their non-migrant counterpart.

The relationship between migration and fertility has been analyzed in the Commonwealth of Puerto Rico by Hatt (1952), Myers and Morris (1960), Macisco et al (1969), Macisco et al (1970) and Rindfuss (1976).

Hatt (1952) related the number of moves from one community to another to the number of pregnancies in the first years of marriage, and found the relationship to hold.

Macisco et al (1969) showed that controlling for education, younger (under 35 years of age) migrants have lower fertility, while older (35-44 years old) women have higher fertility than their non-migrant counterpart.

Macisco et al (1970) found that migrant wives were more likely to be in the labour force. According to them, labour force participation is associated with lower fertility. These authors speculate that rural-urban migrants are more achievement-oriented. Therefore, delayed marriage higher education, birth control within marriage, increased labour force participation, and migration to San Juan are obvious responses to this achievement orientation. These factors contribute to decreased fertility.

According to Rindfuss (1976), when age, initial parity, education, and husband's occupation are controlled, the current fertility level of Puerto Rican wives in the United States who speak English, is almost one-eighth lower than that of those who do not speak English. Somewhat larger differentials appear if husband's ability to speak

English is considered and these differentials do not diminish when husband's income and residence history are entered into the analysis. From this, one may conclude that as migrants assimilate into the mainstream, their fertility becomes similar to that of the native-born population.

1.7 Canadian literature

The important Canadian studies in the recent decade, which refer to the differentials in migrant fertility are those of Henripin (1972) and Balakrishnan et al (1975).

Henripin's analysis of 1961 census data showed lower fertility among foreign-born women. He examined fertility by country of birth of spouses considering four combinations - wife and husband both immigrants (WiHi), wife and husband both native-born (WcHc), wife born in Canada and husband immigrant (WcHi), and wife immigrant and husband born in Canada (WiHc). It is clear from Table 1.1 that when both the spouses are native-born fertility is highest, whereas, if both are foreign-born, it is lowest. The differentials when other factors are brought in, are not clear-cut among the four categories of couples, except the women under 50 years of age who live in urban or non-farm areas, where immigrant women with foreign-born husbands have lower fertility then the other three categories. He pointed out that there was no difference in fertility by the country of birth of the wife or the country of birth of the husband. On the whole the fertility of foreign-born women was found to differ in about the same way as that of women still residing in the countries from which they had originated.

Henripin (1972) also has analyzed the differential on the

Table 1.1

Number of live-born children per 1,000 women living with their husband, by age of woman, type of residence and country of birth of wife and husband, Canada, 1961

(Only women with husband present)

Residence and place of birth[1]	Age of woman (in years)										
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	50-59	60-64	65+
All types of residence											
Wc Hc	770	1,398	2,327	2,979	3,356	3,490	3,401	3,557	3,917	4,228	4,549
Wc Hi	607	1,125	1,887	2,444	2,707	2,731	2,943	2,644	2,866	2,950	3,005
Wi Hc	620	1,078	1,850	2,595	2,937	2,795	2,571	2,569	2,659	3,085	-
Wi Hi	456	984	1,586	2,059	2,316	2,470	2,541	2,661	2,829	3,068	-
Urban											
Wc Hc	719	1,273	2,136	2,722	3,017	3,068	2,924	3,032	3,411	3,731	4,118
Wc Hi	565	1,050	1,741	2,286	2,516	2,471	2,350	2,293	2,530	2,633	2,808
Wi Hc	632	1,014	1,753	2,433	2,773	2,625	2,343	2,303	2,415	2,869	3,106
Wi Hi	449	962	1,524	1,970	2,190	2,326	2,359	2,437	2,493	2,824	3,184
Rural non-farm											
Wc Hc	896	1,721	2,809	3,590	4,087	4,356	4,231	4,264	4,545	4,853	5,159
Wc Hi	822	1,400	2,386	2,935	3,171	3,198	3,126	3,115	3,416	3,701	3,567
Wi Hc	627	1,365	2,219	3,089	3,435	3,243	3,032	3,036	3,071	3,491	-
Wi Hi	532	1,203	2,015	2,882	2,882	2,843	2,838	2,941	3,381	3,500	-
Rural farm											
Wc Hc	731	1,570	2,740	3,614	4,218	4,518	4,684	4,964	5,093	5,275	5,266
Wc Hi	555	1,673	2,676	3,211	3,695	3,793	3,756	4,202	4,180	4,099	3,676
Wi Hc	435	1,265	2,376	3,262	3,554	3,608	3,691	3,814	3,716	3,880	4,416
Wi Hi	513	1,220	2,374	3,049	3,487	3,815	3,862	3,938	4,350	4,314	4,577

[1]Wc Hc: Wife and husband both native born. Wc Hi: Wife born in Canada, husband immigrant.
Wi Hc: Wife immigrant, husband born in Canada. Wi Hi: Wife and husband both immigrants.

Source: Henripin, J. (1972), p. 151.

basis of period of immigration (Table 1.2). He has asserted that the fertility behaviour of women differed greatly, depending on the period during which they settled in Canada and on their age in 1961. As the period of immigration got closer to 1961, the fertility of younger women decreased and that of the older group increased.

The women who immigrated between 1941 and 1945 exhibited a distinct pattern: the younger were most fertile and the older (50 and above) were the least fertile. Henripin (1972) believes that these younger women bore children in Canada contributing to the boom, whereas the older women bore their children before they immigrated to Canada or during the economic depression.

The important factor which emerges from Henripin's analysis of fertility by age and period of immigration, is that the country in which the women was living at the time she bore her children is an important factor to be reckoned. Living in Canada at the time of child-bearing emerges to be a decisive factor for high fertility. The country of birth is usually associated with ethnic origin, mother tongue, and religion. In other words, the country of birth determines the cultural milieu which in turn influences fertility norms. In Canada, most of the French-speaking population is Catholic and most of the English-speaking population Protestant. Henripin has shown that there are differentials in Canadian fertility by ethnic origin, mother tongue, and religion.

For all age groups, he finds the Indian and the Eskimo women are more fertile than the others. The Indian women show slightly higher fertility than the Eskimo women. Except for these women, all other ethnic groups have experienced secular decline in fertility. He finds that after eliminating the influence of education, religion and residence,

Table 1.2

Number of live-born children per 1,000 women ever married, by age and period of immigration of woman, Canada, urban, 1961

Period of immigration	Age of woman (in years)										
	15-19	20-24	25-29	30-34	35-39	40-44	45-59	50-54	55-59	60-64	65+
Before 1921	-	-	-	-	-	2,521	2,366	2,415	2,589	3,104	3,453
1921 - 1930	-	-	-	2,503	2,660	2,559	2,400	2,371	2,437	2,550	2,862
1931 - 1940	-	1,087	2,088	2,476	2,547	2,562	2,363	2,247	2,286	2,511	2,704
1941 - 1945	740	949	1,900	2,975	3,058	2,741	2,276	1,753	1,520	1,750	1,797
1946 - 1950	626	1,096	1,957	2,438	2,531	2,246	2,033	1,878	2,161	2,444	3,229
1951 - 1955	473	1,149	1,798	1,974	2,123	2,261	2,312	2,556	2,682	2,903	3,191
1956 - 1961	457	889	1,308	1,773	2,055	2,439	2,544	3,016	3,156	3,186	3,226

Source: Henripin, J. (1972) p. 166.

the French-speaking women have 40 per cent higher fertility than the English-speaking women. The following is the general order of fertility by religion: Catholic, Hutterites, Mennonite, Mormons, Protestants, Greek Orthodox and Jews.

Balakrishnan et al (1975) found in their Toronto study that foreign-born women tend to have lower fertility even when controlled for religion (cf Table 1.3). They content that, as the age and the marriage duration distributions of these women are very similar to those of their native born counterpart; the causes for differentials are lodged in socio-economic rather than in demographic differences. To obtain a better understanding of the fertility behaviour of foreign-born women, they further classified them into four groups, according to the region of their birth, such as: Western Europe, Eastern Europe, Mediterranean and Others. The results are shown in Table 1.4. The variation between actual, expected, and desired family size shows that women born in Western Europe have lower fertility, followed in ascending order by women born in Eastern Europe and the Mediterranean. The Canadian-born women desire, expect and have higher fertility than their foreign-born counterpart. In this study, differentials persist when analyzed with respect to religion, education, and income. The authors assert that it happens because these variables are associated with the region of birth in the expected direction -- West European women are predominantly Protestant (70 per cent) and have high income, 43 per cent of East Europeans are Catholic, less educated with lower income, and Mediterranean women are predominantly Catholic (80 per cent), are least educated (84 per cent with less than grade 9 education) and have the lowest income (64 per cent earn less than $6,000.).

Table 1.3

Mean number of actual and expected births, by religion and nativity of wife, in Toronto

Religion and wife's nativity	Number of wives	Actual births	Expected births
Protestant:			
Native-born	692	2.20	2.75
Foreign-born	282	2.04	2.53
Total	974	2.15	2.69
Catholics:			
Native-born	205	2.58	3.30
Foreign-born	293	2.46	2.97
Total	498	2.51	3.10
All Religions:			
Native-born	958	2.28	2.89
Foreign-born	674	2.22	2.75
Total	1632	2.26	2.82

Source: Balakrishnan et al, (1975), p. 33.

Table 1.4

Mean number of actual, expected, and desired births, by nativity of wife, Toronto

Number of births	Canada	Western Europe	Eastern Europe	Mediter-ranean	Other	Total
Actual	2.29	2.02	2.18	2.35	2.47	2.25
Expected	2.92	2.54	2,60	2.85	3.29	2.84
Desired	3.05	2.83	3.02	3,04	3.15	3.01
Number of wives	917	290	102	155	72	1536

Source: Balakrishnan et al, (1975) p. 33.

Morah (1975:77-78) reports from his analysis of timing of births in Edmonton, that neither nativity nor generation shows significant differentials in the child-spacing pattern; however, foreign-born women married about one and a half years later and consequently had their first and second children at significantly older ages than the native-born or third generation women. He points out that there were no significant differentials at the third or fourth birth, though the native-born and third generation tended to have those births at earlier ages.

We have summarized the literature on migration and fertility. Our aim here is to contribute to this area by analyzing the fertility patterns and differentials among the foreign-born and native-born

women of Edmonton, Canada.

1.8 Outline of the thesis

The first chapter of this thesis presents a critical review of the literature on migration and fertility. The second chapter provides the theoretical explanations of migration, a discussion of the theoretical framework, and a formulation of the hypotheses to be tested. The third chapter gives a description of data and methodology used for analysis.

The fourth chapter provides tabulations of differentials in current, desired and expected family size by place of birth (nativity), age, year of migration, and generation of Canadian residence of women of age 18 to 54. In this chapter, hypotheses developed at the end of the second chapter haye been tested.

The fifth and the sixth chapters form the main body of the thesis. The fifth chapter intneds to establish that native-born and foreign-born women differ on such background factors as socio-cultural (religion and rural-urban background), economic (education, income and occupation) and demographic (age structure and age at marriage). The sixth chapter shows that because native-born women differ from foreign-born women in their background, they use a differential pattern of intermediate variables to achieve differential fertility.

A summary of the findings, conslusions drawn, and suggestions for further research is presented in the seventh chapter.

CHAPTER 2

MIGRATION AND FERTILITY: A THEORETICAL FRAMEWORK

In the first chapter, we have pointed out that migrants are not a random sample, but a selected group. It is pertinent that before touching upon the theoretical approaches to migration and fertility, we discuss the laws of migration put forward in demographic literature.

2.1 Laws of migration

The first serious attempt to relate migration to such independent factors as population size, density and distance was made by Ravenstein (Thomlinson, 1976:276). According to Thomlinson (1976), some of Ravenstein's generalizations are as follow:

1. Net migrations are a small proportion of the gross migration between two areas.
2. For each main stream of migrants, there runs a counter-current which is usually almost equal in size.
3. The native of towns are less migratory than those of rural areas.
4. The majority of migrants move only a short distance.
5. Both rural to urban and urban to rural migrations tend to proceed by stages.
6. The main currents of migration are from farm to town, town to small city, and small city to large city.
7. The population is shifting toward the great centre of commerce and industry.
8. Females are more migratory than males.
9. Long-distance migrants usually go to large cities.

A more recent set of hypotheses about the volume and characteristics of migration is put forth by Lee (1966):

Volume of migration

The volume of migrations varies with (i) the degree of diversity of areas included in that territory; (ii) the diversity of people; and (iii) fluctuations in the economy, (iv) Unless serious checks are imposed, both volume and rate of migration vary with a state of progress in a country or area.

Stream and counter stream

(i) Migration tends to take place largely within well defined streams. (ii) For every major migration stream, a counter stream develops. (iii) The efficiency of the stream (ratio of stream to counter stream or not redistribution of population affected by the opposite flows) is high if the major factors in the development of a migration stream were minus factors at origin. (iv) The efficiency of stream and counter stream tends to be low if origin and destination are similar. (v) The efficiency of a migration stream varies with economic conditions, being high in prosperous times and low in times of depression.

Characteristics of migration

(i) Migration is selective; (ii) Migrants responding primarily to plus factors at destination tend to be positively selected. (iii) Migrants responding primarily to minus factors at origin tend to be negatively selected; or where the minus factors are overwhelming to entire population group, they may not be selected at all. (iv) Taking all migrants together, selection tends to be bimodal. (v) Degree of positive selection increases with the difficulty of the intervening obstacles. (vi) The heightened propensity to migrate at certain stages of the life cycle is important in the selection of migrants. (vii) The characteristics of migrants tend to be intermediate between the characteristics of the population at origin and the population at destination.

According to Zipf (1946) "the number of migrants between two communities is proportionate to the product of their populations divided by the shortest transportation distance". This is referred to as the $P_1 P_2/D$ hypothesis. Zipf's model continues to be applied widely, but contention exists as to whether the distance factor should

have an exponent of unity or not. In an American study of migration of college students, the most accurate distance exponent for graduate students was unity and for undergraduates, migration was explained better by the exponent two (Gossman et al, 1968). Tarver and Mcleod (1973) suggested a modification to the Zipf's model. They termed this the "Petersen-Greenwood" hypothesis, which states that the number of migrants between any two places is proportional to the number of persons who previously made that move. According to Thomlinson (1976:279):

> There is supportive evidence that American interstate migrants historically have moved to States to which earlier internal migrants from the same State had gone.

A study at Cornell University puts forth the "axiom of cumulative inertia" which states that a person's propensity to move declines as duration of residence increases (McGinnis, 1968:712-722). The explanation implies that increased stay at a place creates strong ties with the location.

The intervening opportunity hypothesis, was suggested by Stouffer (1960). According to this:

> The number of persons going to a given distance is directly proportional to the number of opportunities at that distance and inversely proportional to the intervening opportunities.

It is difficult to measure intervening opportunities. This is exemplified by the fact that Stouffer had to use housing vacancy as a measure of opportunity and other researchers, the increase in the size of labour force (Thomlinson, 1976:280).

2.2 A General typology of migration

Petersen (1972:289-299) presents a generalization in the form of a typology. The circumstances which repel people from home are termed "push" factors and those which attract them to migrate out, "pull" factors. According to his typology, if people leave to achieve something better, then migration is termed innovative; on the other hand if they move in response to a change in conditions and try to retain what they have, such migration is called conservative (Petersen, 1972).

Petersen (1972) uses the push-pull polarity, distinction between innovative and conservative migrations, and the levels of aspirations of the migrants under consideration, to arrive at a broad five-class typology of migration. They are: primitive, forced, impelled, free and mass.

According to him, primitive migration, such as those of nomads and food gatherers, is induced by ecological pressures. In the case of impelled migration, e.g. coolie trade, migrants retian the right to decide whether or not to leave and in the case of forced migration, e.g. slave trade, migrants do not have this freedom. The will of the migrant is the decisive element in free migration.

2.3 Theoretical framework

A review of the literature indicates that research on migration and fertility has been pursued on the basis of two propositions. First, if the area of origin of migrants is of higher fertility than that of their non-migrant counterpart at the place of destination, then migrants tend to exhibit higher fertility. Secondly, migrants from the milieu of low fertility bring low fertility norms, and as a result have lower

fertility than that of their native-born (non-migrant) counterpart. From these propositions one may assume that the fertility patterns of a society are influenced by the normative systems of the various people living in that society and that the fertility of the foreign-born is likely to undergo a change as they assimilate the norms of their country of adoption.

Various terms have been used to describe the emergence of socio-economic patterns resulting from the meeting of two cultures. Eisenstadt (1954) calls absorption the process of first contact to complete invisibility. Anthropologists use the term "acculturation" for the change of culture patterns to those of the host society. Park and Burgess (1921) call this process "accommodation". Recently, Hugh and Kallen (1974) have used the term "integration" for the same concept.

The most popular and influential has been Gordon's (1964) concept of "assimilation", a model based on the American experience. He speaks of three processes of assimilation. First, the Anglo-conformity to conform to the dominant Anglo-Saxon values. This has taken place in the U.S.A., Australia, New Zealand and, to some extent, in Canada. Second, the melting pot - all cultures give rise to a new synthetic culture. In the melting pot, along with the cultural, a biological mixture also takes place through intermarriage. Third, the cultural-pluralism (multi-culturalism) in this system, assimilation is not achieved by contact at primary relation level (such as intermarriage) but by the co-operation in secondary level areas i.e., by participation in the political, economic and civic institutions of the society.

Gordon (1964) has identified seven sub-processes of assimilation which may take place to varying degrees in the life of an immigrant.

They are:

Sub-processes or condition	Type of stage of assimilation	Special term
1. Change of cultural patterns to those of host society	Cultural or behavioral assimilation	Acculturation
2. Large-scale entrance into cliques, clubs and institutions of host society, on the primary group level	Structural assimilation	None
3. Large-scale intermarriage	Marital assimilation	Amalgamation
4. Development of sense of peoplehood based exclusively on host society	Identificational assimilation	None
5. Absence of prejudice	Attitude receptional assimilation	None
6. Absence of discrimination	Behavioral receptional assimilation	None
7. Absence of value and power conflict	Civic assimilation	None

The convergence of fertility norms to those of the host society takes place at the structural and marital levels of assimilation. If a group remains isolated from the core group at the structural level, members of this group will continue to possess the fertility norms of their country of origin. Consequently, one can expect the first generation to have fertility very close to that of the country of origin while the second generation to be very similar to their native-born counterpart.

This takes us to our theoretical framework. Davis and Blake (1956) in their social structural framework identify eleven intermediate

variables affecting fertility. These are:

I. Factors affecting exposure to intercourse (intercourse variables):

A. Those governing formation and dissolution of unions in the reproductive periods:

1. Age of entry into sexual unions.

2. Permanent celibacy: proportion of women never entering sexual unions.

3. Amount of reproductive period spent after or between unions.

a. When unions are broken by divorce, separation or desertion

b. When unions are broken by death

B. Those governing the exposure to intercourse within union:

4. Voluntary abstinence.

5. Involuntary abstinence (from illness, impotence and unavoidable temporary separtion).

II. Factors affecting exposure to conception (conception variables);

7. Fecundity or infecundity as affected by involuntary causes.

8. Use and non-use of contraceptions.

a. By mechanical or chemical means

b. By other means

9. Fecundity or infecundity as affected by voluntary causes (sterilization, subincision, medical treatment, etc.).

III. Factors affecting gestation and successful parturition (gestation variables).

10. Foetal mortality from involuntary causes.

11. Foetal mortality from voluntary causes.

With the help of these eleven variables, Davis and Blake provide an explanation for higher fertility in underdeveloped societies and lower fertility in industrialized societies. The explanation in brief is, that the pre-industrial societies, because of high mortality, have to develop an institutional organization which gives them sufficient reproduction to survive. The pre-industrial societies as compared to industrial societies have high fertility values for intercourse variables. For example, they tend to encourage early exposure to intercourse by early marriage and universal marriage. Though they tend to have low value for variable No. 4, this abstinence is due to religious reasons and is not a method of fertility control, and does not seem to have any substantial negative effect on fertility. Underdeveloped societies also have high fertility values for conception variables they tend to practice little contraception and virtually no sterilization. They tend to postpone the control of pregnancy until parturition, and use those methods nearest to parturition, abortion and infanticide.

Industrial societies exhibit low fertility values for those variables concerned with early stages of reproduction such as age at marriage, proportion married, and contraception; and high fertility values for the variables in the later stage such as infanticide,

Davis and Blake show that for many of the intermediate variables, these societies exhibit opposite values. A contrast is visible for age of entry into union, permanent celibacy, voluntary abstinence, contraception and infanticide. They further contend that a key to the low fertility of the industralized societies lies not in acquiring low fertility values for all the intermediate variables, but in singling out of some of the important intermediate variables.

Another well-known framework is Becker's (1960), which is based on the conventional economic theory of consumer behaviour. Becker suggests that children may be considered as commodity yielding consumer satisfaction. Children, like any other consumer good such as a car, washing machine, and house provide utility to the consumer. The utility of a child depends on its quality. According to this model, parents compare the utility of a child with that derived from other goods. Fertility is seen to be determined by income, child costs, tastes and uncertainty of production. Contraception is introduced as an error factor and lack of its knowledge may result in a larger than desired fertility. Easterlin (1969) suggests that the "potential income" inflow through time will be a better representation of the income concept to household decision.

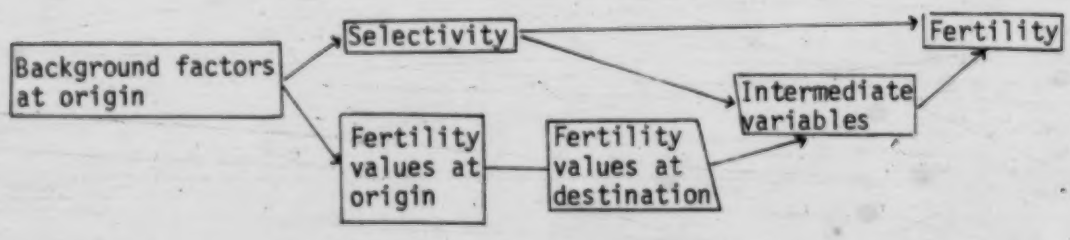
Blake (1968) criticizes the model on the following counts: acquisitive behaviour of human beings about consuming goods and babies is not comparable, there is lack of flexibility (children cannot be disposed of or replaced like consumer goods), quality of children is beyond control; and, unlike consumer goods, children cannot be abused against societal system.

Becker's (1960) model completely ignores the part the normative system plays in fertility decision-making. Freedman's (1961-62) framework links the level of fertility of a society with a normative structure of that society. Every society has the norms about intermediate variables.

In the present study we shall not use the economic framework of fertility. Without disregarding the importance of norms as suggested by Freedman

(1961:26), we will utilize the analytical framework of Davis and Blake (1956) to analyse fertility differentials among the foreign-born and native-born (non-migrant) women of Edmonton, Alberta, Canada. The foreign-born being a "selective" group is bound to differ in background from the native-born group. These two groups will be considered analogous to the sub-societies of the Davis-Blake framework. It will be asserted that the foreign-born and native-born women achieve differential fertility by acquiring differential fertility values (low or high) for various intermediate variables such as age at marriage, duration of union, proportion married, and use and non-use of contraception, etc. These differential fertility values are achieved due to different socio-cultural (religion and rural-urban background), economic (education and income) and demographic structures of these two groups.

A Flow Chart of Analytical Framework



Our flow chart suggests that those who migrate are selected in background factors and this will affect their fertility values at origin as well as at the place of destination. Because of selection, foreign-born women among other things likely to differ from native-born women, and therefore, are likely to acquire different fertility values for intermediate variables. This will result in the differential fertility.

Though selectivity itself will affect fertility of foreign-born women, it will not be tested in this study because of lack of data.

From the review of literature and foregoing discussion, we formulate the following hypotheses.

2.4 First group of hypotheses

Balakrishnan et al (1975) and Henripin (1972) show that foreign-born women have lower fertility then native-born women; and these works have shown that women from higher fertility areas have higher fertility. From the findings emanating from these studies, we hypothesize that:

H1. Foreign-born women have lower fertility than native-born women.

H2. Foreign-born women from higher fertility areas have higher desired, expected and actual fertility than the native-born.

H2.1. Women born in the Mediterranean have the highest fertility level, followed in descending order by women born in Eastern Europe, Western Europe, and the United States.

Based on Henripin's findings we hypothesize the following regarding the provincial differentials in fertility:

H2.2. Among the internal migrants in Edmonton, women born in the Atlantic Provinces have the highest fertility, followed in descending order by women born in the Prairie Provinces, Ontario, British Columbia and Quebec.

H3. Among the internal migrants, the distance from the place of origin and family size are inversely related.

2.5 Second group of hypotheses

During the first few years of their immigration, migrants are pre-occupied with settling down (looking for suitable job and accommodation) in their country of adoption. Therefore, they tend to postpone

marriage and childbearing for some period of time (Morah, 1977:77-78). Therefore:

H4. Younger (i.e. under 35 years of age) women have lower fertility as compared to their native-born counterpart, whereas older (i.e. over 35 years of age) foreign-born women have fertility levels, very close to the native-born counterpart.

H5. The total expected and the desired family sizes are lower for the younger foreign-born women than those of their native-born counterpart.

Fertility in the present century has been influenced by such events as the economic depression of the 1930's, World War II, and the economic boom in the developed countries during the post-World War II years. Therefore, it is hypothesyzed that:

H6. The year of migration is associated with the fertility levels of migrant women.

It follows from Rosenwaike (1973), Rindfuss (1976) and Gordon (1964) that the second generation immigrants tend to have fertility norms very similar to their native-born counterpart therefore:

H7. Second-generation migrants have desired, expected and actual fertility very similar to that of their native-born counterpart, whereas first-generation have markedly different levels of desired, expected and actual fertility from those of native-born women.

CHAPTER 3

DATA AND METHODOLOGY

3.1 Introduction

The present study requires data on socio-cultural, demographic and economic factors. It also requires data on intermediate variables (e.g. use and non-use of contraception, abortion, intra-uterine mortality). Though it is possible to get data on most of the socio-cultural, demographic and economic variables from Canadian census publications, data on intermediate variables cannot be obtained without the use of survey data. The data for this thesis have been taken from the Growth of Alberta Families Study (GAFS).

3.2 GAFS data

The data were collected between November 16, 1973 and February 15, 1974 by trained interviewers with the help of a detailed thirty-page questionnaire. The questionnaire was administered to 1,045 women of all marital statuses between the ages of 18 and 54, living in Edmonton, Alberta, Canada. The GAFS was a conventional knowledge, attitude and practice survey and was the third of its kind in the country. Similar large-scale studies have been conducted for the province of Quebec and the city of Toronto, Ontario.

3.3 Sampling frame

For the collection of data, stratified (two stage) sampling was applied to ensure the selection of some predetermined groups comprising the universe (e.g. Germans, French, Polish and Ukrainians).

Sampling frame for this study consisted of census enumeration areas. At the first stage, 60 enumeration areas were selected from a list of Edmonton enumeration areas, stratified by ethnic composition. Approximately thirty-eight contacts per enumeration area were selected by systematic sampling. This resulted in a total of 2,300 addresses. A summary of the results of these contacts is shown in table 3.1.

Table 3.1

Results of Contacts, GAFS, Edmonton

	No.	Per Cent
1. Completed interviews	1,045	45.4
2. No eligible respondent at household	662	28.8
3. Refusal	221	9.6
4. Vacant households	132	5.7
5. No contact after four call-backs	107	4.7
6. Eligible respondent not available	101	4.4
7. Other	32	1.4

Source: Beaujot, 1975, p. 39

Assuming that the fifth group (no contact after four call-backs group) has the same incidence of ineligible respondents as the total selected addresses, and that "refusal" and "others" were eligible the non-response rate can be computed as 29 per cent of the eligible universe.

The GAFS sample is fairly representative of the Edmonton population, because the indexes of dissimilarities for the age distribution and for the ethnic distribution are small. The detailed methodology, representativeness of the sample and the calculations of weights are discussed in Krishnan and Krotki (1976, chapter 2) and Beaujot (1975).

3.4 The characteristics of GAFS households

The average size of these households in which interviews were carried out was 3.5 persons. About 88.9 per cent of the households had one eligible respondent, while 9.9 per cent two eligible respondents and 1.2 per cent more than three eligible respondents (Beaujot, 1975). The women interviewed had on an average given birth to 1.72 live births. 35.3 per cent of the women interviewed did not report any live birth at all.

The age distribution and marital status distribution of the GAFS respondents are presented in Table 3.2 and Table 3.3 respectively.

The mean age of these women is 32 years (the median age 30).

3.5 The study sample

The analysis in this study is restricted to married women. This was done basically due to considerations of uniformity. Moreover,

nuptiality itself is affected by the migration experience of a person. According to Morah (1977:78), the foreign-born woman married on an average about one-and-a-half years later than the native-born woman, and the first-generation woman married about two-and-a-half years later than the third-generation woman. Because nuptiality and child-bearing patterns are affected by migration experience, it is better to control for marital status in a study on nativity and fertility.

Table 3.2

Age Distribution, GAFS, Edmonton

Age	Per Cent
18 - 24	33.1
25 - 29	16.0
30 - 34	12.8
35 - 39	9.7
40 - 44	11.8
45 - 54	16.7
Total	100.0

Source: Beaujot, R. (1975), p. 40

Table 3.3

Marital status distribution, GAFS, Edmonton

Marital status	Per Cent
Single	19.1
Separated	3.9
Widowed	1.9
Divorced	1.7
Married	70.3
Total	100.0

Source: Beaujot, R. (1975), p. 40

Out of the 1,045 women in the sample, 737 (70.3%) reported themselves married, and among these married, 564 (76.2%) were native-born and 173 (23.8%) foreign-born. The distribution of the study sample by nativity is presented in Table 3.4.

When the native-born women are classified on the basis of distance of their place of birth from Edmonton, the following distribution is otained (See Table 3.5).

Table 3.4

Distribution of women by place of birth, GAFS, Edmonton

Place of Birth, Native-Born	Number	Per Cent Native-Born
Prince Edward Island	1	0.2
Nova Scotia	7	1.2
New Brunswick	1	0.2
Quebec	17	3.0
Ontario	18	3.2
Manitoba	28	5.0
Saskatchewan	85	15.1
Alberta	381	67.5
British Columbia	26	4.6

Place of Birth, Foreign-Born	Number	Per Cent Foreign-Born
United Kingdom	38	22.0
Germany	20	11.6
Italy	9	5.2
Poland	15	8.6
Ireland	5	2.9
U.S.A.	8	4.6
France	2	1.2
Ukraine	6	3.5
Others	70	40.4

Table 3.5

Distribution by distance of birth place from Edmonton

Distance	Number	Per Cent
Long distance (P.E.I., N.S., and N.B.)	9	1.5
Long-medium distance (Quebec and Ont.)	35	6.2
Medium distnace (Sask., Man. and B.C.)	139	24.7
Short distance (Alberta but not Edmonton)	92	16.3
Non-movers (Edmonton-born)	289	51.3
Total	564	100.0

Table 3.5 reveals that more than a half of the native-born women are non-movers and number of "long distance" migrants is very small.

Table 3.6

Age distribution by nativity, GAFS, Edmonton

Age	Native-born		Foreign-born	
	N	Per Cent	N	Per Cent
18 - 24	140	24.8	21	11.9
25 - 29	102	18.1	23	13.3
30 - 34	84	14.9	29	16.8
35 - 39	59	10.5	26	15.2
40 - 44	79	14.0	29	16.8
45 - 54	100	17.7	45	26.0
Total	564	100.0	176	100.0

The age structure of foreign-born women is uniform, whereas a larger proportion of native-born women is young.

3.6 The Fertility measures adopted

The fertility measures used in this study are current family size, expected family size, and desired family size. Our interest here is to study how migration affects fertility. Therefore current family size is relevant and we have carried out the major analyses with the help of this measure. This is defined as the total number of live births and is derived by adding the responses to questions 31, 32 and 33 in the questionnaire. These questions are as follow:

Question 31: How many children of your own - those that you have actually borne - now live with you?

Question 32: How many of your children now live somewhere else?

Question 33: How many of your own children have died?

Though pregnancies not resulting in live birth are bound to affect current family size, miscarriage, abortion and still birth are excluded from the definition of live birth, because they are documented as under-reported (Beaujot, 1975:42; Bumpass and Westoff, 1970:133-134; Ryder, 1973:500-501).

Expected family size is defined as the number of live births plus the number of additional births expected. Questions 1, 10, 29, 30, 31, 32, 33 70, 72, 82, 85, 86, 89, 11 and 105 were employed in the calculation of expected family size by Beaujot (1975) and the variable was saved on permanent file. The wording of these questions can be seen in the attached GAFS questionnaire. One of the ten following alternatives has been used to calculate expected family size for each respondent.

The ten alternatives are:

1. Respondent wants no children eventually (Q 30): expected family size is current family size (Q 31 - Q 33).
2. Respondent does not know if she wants children eventually (Q 30): expected family size is coded as missing data.
3. Respondent wants children eventually (Q 30) and her year of birth is since 1932 (Q 1): expected family size is current family size (Q 31 - Q 33).
4. Respondent wants children eventually (Q 30) and her year of birth is 1932 or earlier (Q 1): expected family size is current family size.
5. Respondent is pregnant (Q 70 is answered): expected family size is one plus current family size (Q 31 - Q33) plus the additional expected (Q 72).
6. When there is an indication that respondent or husband cannot have more children (Q 82, 85, 86): expected family size is current family size (Q 31 - Q 33).
7. When marital status (Q 10) is single, separated, widowed or divorced, and year of birth is since 1932 (Q 1): expected family size is taken from (Q 105).
8. When marital status (Q 10) is single, separated, divorced or widowed, and year of birth is 1932 or earlier (Q 1): expected family size is current family size.
9. When respondent wants no additional children (Q 89): expected family size is current family size (Q 31 - Q 33).

10. When respondent wants additional children (Q 89): expected family size is current family size plus additional expected (Q 91)."

Alternatives 1-4 are skipped if the respondent is or has ever been pregnant.

Desired family size for each respondent has been computed by collapsing both the sexes from their response to question 105. Question 105 reads:

> If you could choose now exactly the number of children to have altogether in a life time, how many boys and how many girls would you choose?
>
> Girls_____
> Boys _____
> Either_____

3.7 Statistical techniques used

Multiple Classification Analysis (MCA) has been used to analyse the relationship between the dependent and the independent variables. A comprehensive and detailed discussion of the MCA is provided by Andrews et al (1973) and the computer program used in this study is given in the Statistical Package for Social Sciences (Nie et al, 1975). MCA is particularly useful when factors examined are correlated. Moreover, it can handle predictors with nominal level of measurement. Given two or more interrelated factors, it is valuable to know the net effect of each variable when the differences in other factors are constant. *Suppose we are interested in the effect of sex

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*Example here has been taken from Nie et al, 1975:409.

and race on wages of employees, because discrimination is suspected. The level of education of the employees and the duration of employment also influence wages. Therefore, we introduce these two variables (the level of education and the duration of employment) as covariates. With the help of MCA we can show that the effect of each factor (race and sex) diminishes when we adjust for other factors (covariates). This will suggest that sex and race are related in the context of employment.

MCA scores can also be used to examine the pattern of changes in the effects of a given variable as we introduce more variables as controls. For example, we find that there was a difference of $50 between whites and non-whites. This difference reduces to $30 when the confounding effect of sex is controlled for. When the differences in education and the length of employment are further controlled for, this difference reduces to $20. This pattern of change in the dependent variable (wages) can be studied with the help of MCA.

The MCA table provides (i) the grand mean of the dependent variable, (ii) unadjusted scores for each category of independent variables, and (iii) adjusted mean scores for each category of independent variables after controlling for the effects of the other variables in the model. Both the adjusted and the unadjusted mean scores are given as deviations from the grand mean. These category means, expressed in deviation forms, reflect the "effect" of each category of independent variable on the dependent variable both before and after the controls. Eta is equivalent to a simple beta from the bivariate linear regression of the dependent variable on factor, before controlling for the other factors. It is the correlation ratio and

indicates the ability of the predictor, to explain the variation in the dependent variable when the categories are given.

The patterns of change in the effects of a given variable, when we introduce other controls may be studied by examining changes in the partial betas in a MCA table. The multiple R is used to examine the strength of overall relationship between the criterion variable and the independent variables. R^2 represents the variation explained in the dependent variable by the linear additive effects of factors and covariates.

The MCA model is purely an additive model and thus it is unable to deal with interaction terms. In other words, if there is strong interaction between factors the MCA scores lose their meaning.

It is, therefore necessary to test first the significance of the interaction terms using the n-way of analysis of variance (ANOVA) before developing the MCA tables.

CHAPTER 4

DIFFERENTIALS IN FERTILITY BY MIGRATION STATUS

4.1 Introduction

In this chapter, we shall look at the patterns of differentials in current, expected and desired family size of native-born and foreign-born women, and test the hypothesis developed elsewhere.

4.2.1 Foreign-born vs. native-born

Table 4.1 gives mean current, expected, and desired family size by nativity of married women aged 18 - 54. It is seen that foreign-born women have slightly lower expected and desired family size than native-born women. The current family size is higher among foreign-born women. This differential is small and is not statistically significant. Therefore, our analysis will be more qualitative than statistical.

From figures on current family size in Table 4.1 the hypothesis that foreign-born women have lower fertility than the native-born, is not supported. The reasons for this will be elicited later in this study.

4.2.2 Place of birth

Table 4.2 provides the detailed breakdown of current, expected and desired family size by place of birth. For native-born women, family size is given by each province of birth and for the foreign-born, data have been broken down into nine international categories.

Table 4.1

Mean family size by nativity of married women (18-54), GAFS, Edmonton

Nativity	Current	Expected	Desired
Native-born	2.07 (464)	2.82 (533)	2.98 (535)
Foreign-born	2.30 (173)	2.78 (166)	2.94 (157)
Total	2.12 (737)	2.81 (699)	2.97 (692)

Note: The number in parentheses is the number of respondents in that category.

Among the native born, the women born in the Maritimes (Prince Edward Island, Nova Scotia and New Brunswick) have highest current, expected and desired family size. But the number of cases is small for generalizing. Women born in Quebec and Manitoba have current, expected and desired family size below the national average and those born in the other provinces have family size very close to the national average. The B.C. born desire relatively larger family size than the Canadian average. Data on native born women do not conclusively support hypothesis 2.1, that women born in the Atlantic provinces, have the highest fertility, followed in descending order by women born in the Prairie provinces, Ontario, British Columbia, and Quebec. Rather, fertility levels are followed in descending order by women born in Ontario, British Columbia, Saskatchewan, Alberta, Quebec, and Manitoba.

Table 4.2

Family size by place of birth of married women (18-54), GAFS, Edmonton

Native-born

Place	Current	Expected	Desired
P.E.I.	4.00 (1)	4.00 (1)	4.00 (1)
N.S.	2.28 (7)	3.00 (7)	3.57 (7)
N.B.	5.00 (1)	5.00 (1)	3.00 (1)
Que.	1.94 (17)	2.35 (17)	2.71 (17)
Ont.	2.22 (18)	3.23 (18)	3.23 (18)
Man.	1.82 (28)	2.46 (24)	2.87 (24)
Sask.	2.11 (85)	2.83 (80)	3.06 (82)
Alta.	2.05 (381)	2.80 (360)	2.94 (360)
B.C.	2.19 (26)	3.31 (26)	3.15 (26)

Foreign-born

U.K.	2.10 (38)	2.62 (37)	2.53 (34)
Germany	2.30 (20)	2.75 (20)	2.85 (20)
Italy	2.33 (9)	3.33 (9)	3.87 (8)
Poland	2.87 (15)	2.85 (13)	2.79 (14)
Ireland	2.00 (5)	3.40 (5)	3.60 (5)
U.S.A.	1.00 (8)	1.75 (8)	2.12 (8)
France	1.50 (2)	2.50 (2)	3.00 (2)
Ukraine	2.16 (6)	2.20 (5)	3.40 (5)
Others	2.48 (70)	2.90 (67)	3.13 (61)
Total	2.12 (737)	2.81 (699)	2.97 (692)
Per Cent variance explaned	2.10	2.36	2.60

Note: The number in parentheses indicates the number of cases.

Among the foreign-born, current family size is highest among Polish and Italian women and lowest among the American and French. The Italian and Irish women expect and desire to have the highest fertility among the foreign-born.

The women born in the Mediterranean (Italy) area and Poland have the highest fertility, followed in descending order by those born in the Ukraine, Western Europe (Germany, U.K. and Franch), and the U.S.A. Thus, the data on foreign-born women support our hypothesis that the migrant women from higher fertility areas have higher fertility.

4.3 Distance and family size

Table 4.3 is presented to test the hypothesis H3 that among the internal migrants the distance between the place of origin and the place of destination and fertility are inversely related. Data are divided into the following categories: migrants from Prince Edward Island, Nova Scotia, and New Brunswick are grouped in the "long distance" category; migrants from Quebec and Ontario in the "long-medium distance"; and migrants from Manitoba, Saskatchewan and British Columbia are in the "medium distance" category. Those residents of Edmonton who migrated from other parts of Alberta are classifed as "short distance" migrants and those residents of Edmonton who were born in Edmonton as "non-movers".

Table 4.3 and Figure 4.1 show that current family size exhibits a roughly J-shaped relationship with distance between origin and destination (Edmonton), if the category of non-mover is excluded.

Table 4.3

Family size by distance for native-born married women, GAFS, Edmonton

Distance	Current	Expected	Desired
Long distance	2.78 (9)	3.33 (9)	3.56 (9)
Long-medium distance	2.08 (35)	2.79 (34)	2.97 (34)
Medium distance	2.07 (139)	2.86 (130)	3.04 (132)
Short distance	1.75 (92)	2.79 (84)	3.00 (91)
Non-movers	2.14 (289)	2.80 (276)	2.93 (269)
Total	2.06 (538)	2.79 (507)	2.97 (509)

Note: Long distance category includes migrants from P.E.I., N.S., & N.B.

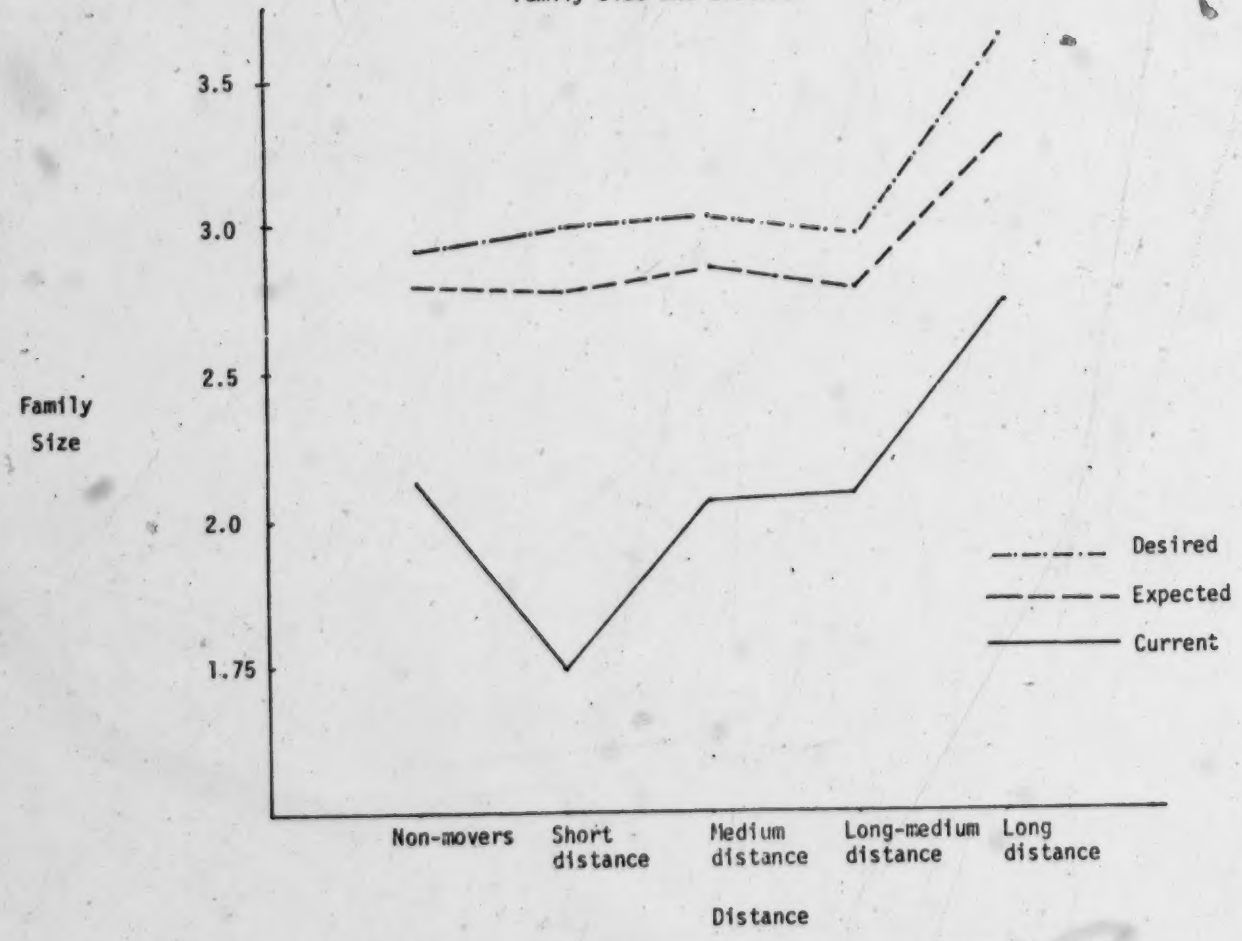
Long-medium distance - from Que. & Ont.

Medium distance - from Man., Sask. & B.C.

Short distance - from other parts of Alberta to Edmonton.

Non-movers are those who live in Edmonton from birth.

Figure 4.1
Family size and distance



Short distance migrants have the lowest fertility followed in ascending order by medium distance, long-medium distance, and long distance migrants. If non-movers are included the pattern of relationship becomes approximately U-shaped. Non-movers have a higher current family size than short distance to long-medium distance migrants.

It is seen that the long distance migrants expect and desire higher family size than other migrants. There are no significant differences in expected and desired family size among the migrants of the other categories.

The hypothesis H3, that the farther the distance of place of origin from Edmongon, the smaller the family size, is not tenable, since short distance migrants have lower family size than do non-movers.

Without controlling other factors, the notion that migration affects fertility negatively is only true in the case of short distance migrants.

4.4 Age

The age of the respondent is an important predictor of family size. Tables 4.4 to 4.6 show that the variations explained in current, expected, and desired family size by the age of respondent are statistically significant. The age of the respondent influences current family size more strongly than expected and desired family size. The variation explained by age of the respondent is higher for the native-born women (about 32 per cent) than for the foreign-born women (about 23 per cent).

The foreign-born women under 25 and between 30-34 have, expect, and desire smaller family size than their native-born counterpart. This supports hypothesis H4 that the young immigrant women have lower

Table 4.4

Current family size by age of respondents (18-54), GAFS, Edmonton

Age	Foreign-born Mean	N	Native-born Mean	N
18 - 24	0.43	21	0.66	140
25 - 29	1.61	23	1.41	102
30 - 34	2.24	29	2.51	84
35 - 39	2.85	26	3.02	59
40 - 44	2.97	29	2.90	79
45 - 54	2.82	45	3.12	100
Total	2.30	173	2.06	564
Per cent variance explained	22.85*		32.39*	

*significant at .01 level

Table 4.5

Total expected family size by age of respondents (18-54), GAFS, Edmonton

Age	Foreign-born Mean	N	Native-born Mean	N
18 - 24	2.38	21	2.62	133
25 - 29	2.70	23	2.50	90
30 - 34	2.71	24	2.74	78
35 - 39	3.00	25	3.21	57
40 - 44	2.97	29	2.91	77
45 - 54	2.82	44	3.16	98
Total	2.78	166	2.82	533
Per cent variance explained	1.44**		2.79*	

**significant at .01 level
*significant at .08 level

Table 4.6

Desired family size by age of respondent (18-54), GAFS, Edmonton

	Foreign-born		Native-born	
Age	Mean	N	Mean	N
18 - 24	2.45	20	2.72	134
25 - 29	2.54	22	2.56	96
30 - 34	2.69	26	2.86	81
35 - 39	3.48	23	3.41	56
40 - 44	3.13	24	3.20	74
45 - 54	3.14	42	3.45	94
Total	2.94	157	2.98	535
Per cent variance explained	6.88**		6.55*	

**significant at .05 level
*significant at .01 level

fertility than their native-born counterpart, because they tend to postpone marriage and childbearing.

The expected and desired family sizes to some extent, increase with increase in age of the foreign-born as well as the native-born women as is clear from Tables 4.5 and 4.6. The age distribution is more uniform among the foreign-born women than that among the native-born. Among the native-born women the number of married women is proportionately higher in the younger age group 18-24 years. That is why among the native-born women the variation in current family size by age is higher than that among foreign-born women.

4.5 Year of migration

A look at the data in Table 4.7 reveals that the year of migration seems to affect the fertility of migrants. In the present century, events such as the Depression of the 1930's, the World War II, and the post-War II economic prosperity have affected human fertility in the developed world. Table 4.7 gives desired, expected and current family size of married women by the year of immigration. The migrants during the Depression period expect and have lower fertility than the migrants prior to the 1930's. The economic hardships seem to have had a negative effect on fertility of the immigrants as well during that decade. The incidence of immigration was very low during the World War II years. There is only one migrant respondent in our data for the 1940-1944 years. Those who arrived in the span of 1945-1954 have a family size of three. The family size increased during post-War II years. Current family is about 2 for the immigrants during 1955-1969. It is interesting to note that while the immigrants who arrived in the 1970's

Table 4.7

Mean family size by year of immigration for married women (18-54)
GAFS, Edmonton

Year	Current	Expected	Desired
1923-24	5.00 (1)	5.00 (1)	0.00 (1)
1925-29	3.71 (7)	3.71 (7)	3.37 (8)
1930-34	2.00 (3)	2.00 (3)	3.33 (3)
1935-39	1.67 (3)	1.67 (3)	3.00 (2)
1940-44	3.00 (1)	3.00 (1)	4.00 (1)
1945-49	3.00 (18)	3.18 (17)	3.41 (17)
1950-54	3.00 (33)	3.29 (31)	3.06 (31)
1955-59	1.97 (35)	2.43 (35)	2.64 (36)
1960-64	1.93 (15)	2.38 (13)	2.71 (14)
1965-69	2.00 (31)	2.59 (29)	2.71 (41)
1970-74	1.50 (24)	2.75 (24)	2.69 (26)
Total	2.30 (171)	2.79 (164)	2.86 (180)
Per cent variance explained	14.00*	8.50	7.17

*significant at .01 level

have a smaller family size than those of earlier years (1955-1969), and they expect a slightly larger family size than the earlier migrants because they are young and have not completed their fertility performance.

The year of migration explains significant variance in current family size and not in desired or expected family size. The hypothesis H6 that the year of migration and the fertility levels of migrants are associated, is confirmed for the current family size.

4.6 Generational differences in fertility

In Table 4.8 are shown the size by nativity of respondent's parents. In the present data, we have observed earlier that the respondents foreign-born parents have higher family size than their native-born counterpart. From Table 4.8 we note that having a foreign-born parent accounts for a larger family size. Those respondents whose parents are both foreign-born have higher current family size than those with one or both Canadian-born. Current family size is slightly higher for respondents whose mother only is Canadian-born than those whose father only is Canadian-born. Those with both parents Canadian-born have the lowest current family size. The influence of mother tends to be more than that of father during the socialization process and therefore, the mother being Canadian-born or being foreign-born has a great influence on the level of fertility. In our data, therefore, respondents with foreign-born mothers are more likely to have higher current family size than those with foreign-born father.

Unlike current family size, the variance explained by nativity of parents of respondents in expected family and desired family size is not statistically significant.

Table 4.8

Family size by nativity of respondent's parents, GAFS, Edmonton

Nativity	Current	Expected	Desired
Both parent Canadian-born	1.77 (326)	2.84 (306)	2.96 (309)
Father Canadian-born	1.95 (40)	2.42 (38)	2.77 (39)
Mother Canadian-born	2.27 (78)	2.75 (72)	2.04 (74)
Both parents foreign-born	2.50 (286)	2.87 (276)	3.01 (263)
Total	2.12 (730)	2.82 (692)	2.97 (685)
Per cent variance explained	2.79*	0.42	0.19

*significant at .01 level

Note: The number in parentheses indicates the number of cases.

Table 4.9 gives current, expected, and desired family size by generation of the respondent. Family size (current, expected and desired) has been further broken down by generation and age of respondent and is presented in Table 4.10 to 4.12. We shall use the following definitions for discussion purposes. Canadian-born of Canadian parentage are called "third-generation", those born of foreign or mixed parentage or those who migrated to Canada before age 12 are called "second-generation" and those respondents who are foreign-born and immigrated to Canada at age 12 or after are categorized as "first generation".

Table 4.9 shows that the third-generation women have the lowest current family size, the second-generation the intermediate. Differences in current family size and the first and the second-generation are very small. The third-generation respondents have significantly lower current family size than the other two generations. Expected and desired family size do not differ at a statistically significant level by generation.

The variance explained by generation in current family size is statistically significant. The smaller current family size among the third-generation women may be because of the differences in the age structures of the three generations. The third-generation respondents are predominantly younger than the others, and have smaller family size.

Table 4.9

Family size by generation of respondents, GAFS, Edmonton

Generation	Current	Expected	Desired
Third	1.78 (323)	2.84 (303)	2.96 (307)
Second	2.43 (272)	2.84 (260)	2.99 (258)
First	2.35 (138)	2.74 (132)	3.00 (123)
Total	2.13 (733)	2.82 (695)	2.98 (688)
Per cent variance explained	3.20*	0.06	0.01

*significant at .01 level

Note: The number in parentheses indicates the number of cases.

Third generation: Canadian-born of Canadian parentage.
Second generation: Respondents born of foreign-born or mixed parentage or those who migrated to Canada before age 12.
First generation: Foreign-born and immigrated to Canada at age 12 or later.

To verify this, we have cross-tabulated family size by generation and age.

It is evident from Table 4.10 that the third-generation has more than 35 per cent women under 25 years and more than 52 per cent under 30. Most of these women are unlikely to have completed their family size. Only about 29 per cent of the women are under 30 years of age in the second-generation and just about 19 per cent are under 30 in the first generation. This differential in the age structure of the three generations is the reason that the third-generation group of women have a smaller family size. It is also clear that younger (under 35) first-generation women, on average, have smaller family size than their second and third-generation counterpart. Except for the 45-54 age group, older (over 35 years) first-generation women have fertility levels very close to their native (third generation) counterpart. This finding supports hypothesis H4 that younger women have lower fertility levels as compared to their native-born counterpart, whereas older foreign-born women have fertility levels very close to those of their native-born counterpart.

From Table 4.6 it seems that the hypothesis that second-generation women have current, expected, and desired family size very similar to those of the third-generation women and that the first-generation women have markedly different current, expected and desired family size than their second-generation counterpart, is not confirmed for the current family size. The second-generation women have higher current family size than the third-generation, and the first-generation women have slightly smaller fertility than the second-generation women. The second and third-generation women expect to have very similar family size, whereas

the first-generation women expect slightly smaller family size than their second-generation counterpart. This pattern for expected family size by generation is in line with our hypothesis. Also desired family size does not vary by generation of the respondent.

A look at Tables 4.11 and 4.12 reveals that there are no significant differences in expected and desired family size by generation; but younger first-generation women, particularly those under 25, expect and desire smaller family size than their second and third-generation counterpart. This confirms our hypothesis that the total expected and the desired family size are smaller among the younger foreign-born women as compared to their native-born counterpart.

4.7 Summary

In this chapter we have attempted to test the hypotheses formulated in the second chapter. We have looked at fertility differentials by respondent's place of birth, distance between the place of origin and destination, nativity, year of immigration, nativity of respondent's parent, and respondent's generation.

Foreign-born women have lower family size than native-born women, but they expect and desire to have slightly smaller fertility. The data support the hypothesis that the foreign-born women from high fertility areas have higher fertility.

It is seen that among the internal migrants, "short distance" migrants have the lowest fertility, followed in ascending order by "medium distance", "long-medium distance", and the "long distance". "Non-movers" have higher fertility than "short distance" migrants.

Table 4.10

Current family size by generation and age, GAFS, Edmonton

Age	Generation Third	Second	First
18 - 24	.68 (116)	.58 (36)	0.22 (9)
25 - 29	1.33 (72)	1.71 (34)	1.35 (17)
30 - 34	2.75 (48)	2.31 (29)	2.08 (26)
35 - 39	3.04 (28)	2.88 (33)	3.00 (24)
40 - 44	2.80 (30)	2.92 (51)	3.04 (27)
45 - 54	3.38 (29)	3.14 (79)	2.60 (35)
Total	1.78 (323)	2.43 (272)	2.35 (138)

Table 4.11

Total expected family size by generation, GAFS, Edmonton

Age	Generation Third	Second	First
18 - 24	2.70 (110)	2.34 (35)	2.11 (9)
25 - 29	2.54 (63)	2.58 (31)	2.53 (17)
30 - 34	2.91 (46)	2.59 (34)	2.59 (22)
35 - 39	3.42 (26)	3.91 (33)	3.17 (22)
40 - 44	2.83 (29)	2.92 (50)	3.04 (27)
45 - 54	3.38 (29)	3.19 (77)	2.59 (34)
Total	2.84 (303)	2.84 (260)	2.74 (132)

Table 4.12

Desired family size by generation and age, GAFS, Edmonton

Age	Generation Third	Second	First
18 - 24	2.79 (110)	2.42 (36)	2.37 (8)
25 - 29	2.49 (67)	2.67 (33)	2.69 (16)
30 - 34	3.10 (48)	2.56 (36)	2.65 (23)
35 - 39	3.74 (27)	3.07 (30)	3.55 (22)
40 - 44	3.00 (28)	3.31 (48)	3.14 (22)
45 - 54	3.78 (27)	3.39 (75)	3.09 (32)
Total	2.96 (307)	2.99 (258)	3.00 (123)

Note: See Table 4.9 for the definition of each generation.

The age structure is uniform among foreign-born women, whereas it is weighted heavily towards younger (18-24 years) women in the native-born group. The data support the hypothesis that the young foreign-born women have lower fertility than the young native born women.

The hypothesis that the year of immigration is associated with the fertility levels of the migrants is supported for current family size. It is also seen that having a foreign-born parent accounts for a larger family.

The hypothesis that the younger (under 35 years) foreign-born women have lower fertility than their native-born counterpart; whereas the older (over 35 years) foreign-born women have fertility very close to that of their native-born counterpart, is also confirmed.

Our hypothesis that second generation women have current, expected and desired family size very close to that of the third-generation women, and that first-generation women have markedly different current, expected and desired family size from that of the third-generation, is not confirmed for the current family size. Nonetheless, the pattern of total expected family size by generation of Canadian residence of respondents is in line with our hypothesis.

CHAPTER 5

BACKGROUND FACTORS AND FERTILITY DIFFERENTIALS BY NATIVITY

5.1 Introduction

We have stated in our theoretical framework that the native-born and the foreign-born women differ in regard to the socio-cultural, the economic and the demographic background factors. Due to differences in background factors, these groups (the native-born and the foreign-born women) acquire differential fertility values for the various intermediate variables and therefore choose selected intermediate variables for controlling the family size. This leads to differential fertility between the two groups.

In this chapter we establish that the native born and the foreign-born women exhibit differentials in their background factors related to fertility. Once the differences in background factors are established, the fertility differences can be traced by means of the differential use of the intermediate variables. This is accomplished elsewhere in this study.

We have chosen seven background variables for the present analysis. They are: the respondent's religion and rural-urban background while being raised, education, occupation, family income, age and age at first parity. These seven factors are used to carry out MCA separately for both the native-born and the foreign-born groups. These variables have been treated as independent variables and current family size as the

dependent variable. Here we shall study (i) the pattern of relationship between current family size and the independent variables, both before and after controlling for the effects of other background variables; (ii) secondly, we shall compare the relative effects of the background factors on the current family size. The interaction among the background factors will be tested by the analysis of variance (ANOVA) technique.

The importance of background factors in fertility studies and the method used to operationlize these variables are discussed in the following pages.

5.2 Selected background factors

Age

The capacity of human females to reproduce lacks in childhood, develops during adolescence and reaches a high point at maturity (Petersen, 1975). This capacity declines in the middle age and entirely vanishes during old age. This means fertility is higher in a group which has larger proportions of women in fertile ages. Immigration largely tends to be age-specific and hence this might influence the fertility levels of the foreign-born women. Furthermore, age at menarche (Pearl, 1939 and Kumar, 1967) and age at menopause (MacMahan and Warcester, 1966) vary from one society to another. Therefore, age structure is an important factor in determining the fertility of various groups.

Age at first parity

It has been reported that the migrants tend to postphone marriage and the birth of their first child for one to two years, because

they are preoccupied with settling down (looking for suitable job and accommodation) during the first few years following immigration (Henripin, 1972). Morah (1977) also reports from the present data that foreign-born women married one-and-a-half years later than native-born women, and foreign-born women had their first and second children at significantly older ages than the native-born. These findings indicate that it is relevant to include age at first parity for a study of migration and fertility.

Religion

Values and attitudes differ among the various religious groups. These values in turn influence the expected and the actual fertility. In the Western societies fertility among Catholics is found to be higher than among Protestants. According to the Catholic teachings the main purpose of marriage is procreation, and therefore, the use of certain birth control measures is forbidden. According to recent Canadian studies, the fertility among the Catholics has been found to be higher than among the non-Catholics (Henripin, 1972 and Balakrishnan et al, 1975).

Henripin (1972:112) has shown with the help of the census data that from 1941 to 1951, the Catholic and non-Cathllic fertility differentials remained constant. Even after controlling for income, education of wife, and the type of residence he found the Catholic fertility about 28 per cent higher than the non-Catholic fertility, both in 1941 and 1961.

Balakrishnan et al (1975:35) also have reported that religious affiliation is very closely associated with fertility. According to this study, the Catholics have higher actual and expected fertility than the non-Catholics.

In the present study we have the folliwng categories of respondent's religion (Q 21)

1. Protestant: Anglican, Baptist, Mennonite, Pentecostal, Lutheran, Presbyterian, and United Church.
2. Catholic: Greek Orthodox, Roman Catholic, and Ukrainian Catholic.
3. Other: Jewish, Others, and no religion.

Rural-urban background

Some studies (Goldberg, 1959 and 1960; Freedman and Slesinger, 1961; and Duncan, 1965), have shown that the rural-urban background is related to the level of fertility. These studies have been discussed in detail in the first chapter of this study. Moreover, the rural-urban background affects other factors such as education, income, and occupation. Migrants from rural areas tend to be lower on educational, income and occupational levels. Henripin (1972) has shown that in Canada the residence background emerges as an important variable affecting fertility.

These studies reveal that women with a rural background tend to have higher fertility than those with non-rural background. In the present study, this variable is operationalized as respondent's residence in youth. The question asked of the respondent was "Where did you live most of the time while you were growing up (say, up to age 12)? (Question number 7 in the questionnaire).

1. Rural
2. Town
3. City

Education

The education of women and fertility are generally inversely related. This general negative relationship between education and fertility is also reported in the three major studies conducted in Canada (Charles, 1948, Henripin, 1972: and Balakrishnan et al, 1975). Charles (1948:48) reported a difference of two children between the women (aged 45-54 years in 1941), who had 0-8 years of schooling and 13 or more years of education. Henripin (1972) found the education of the wife second in importance to the residence and reported a negative relationship with fertility. Balakrishnan et al (1975) found a U-shaped relationship between the education of the wife and fertility in all religious groups.

Respondent's education in the present study was coded as follows:

1. 0-8 years
2. 9-13 years but no post-secondary
3. Post secondary but no university
4. Some university
5. Missing data

Occupation

The relationship between occupation and fertility was found to be negative in the 1941 and 1961 census studies in Canada (Charles, 1948:102 and Henripin, 1972). The Toronto study on the other hand notes a U-shaped relationship between occuaption and fertility.

We have used the respondent's last occupation for the purpose of this study and it has been coded as follows:

Respondent's last occupation:

1. "White collar": includes management, administration, natural sciences, engineering, mathematics, social sciences, religion, teaching, medicine/health, art, literature, and recreation.
2. "Clerical and services": includes cerlical and sales service occupations.
3. "Blue collar": includes farming, forestry, mining, processing, machining, fabricating, construction, transportation, equipment handling and equipment operation.
4. No last occupation.

Income

We have discussed some aspects of an economic model of fertility in the first chapter. In Canada, income was seen to be negatively related to fertility in 1941 (Charles, 1948:136). In the 1961 census, relationship between family income and fertility was found to be positive, if those families with income less than $2,000 were excluded (Henripin, 1972). Rao (1973) notes that income was negatively related to fertility in all three censuses for the 35-44 year olds, however for ages less than 35 the negative relationship in 1941 changed to positive in 1951 and 1961 (quoted in Beaujot, 1975:55). Balakrishnan et al (1975) found a U-shaped relationship between husband's income and completed fertility.

We have used family income and this variable has been coded into the following categories:

Family income (Q 177, 219)

1. Under $7,000
2. $7,000 - $9,999
3. $10,000 - $14,999
4. $15,000 and more
9. Missing data

5.3 Background factors and current family size by nativity

The Tables 5.1 to 5.7 present the results of the MCA with the current family size as the dependent variable and background variables as independent variables. Among the background variables, respondent's age, age at first parity and family income were used as covariates; and religion, nature of residence while growing up, last occupation and education as factors.

The regression and the eta coefficients between the independent variable and the current family size of native-born women are presented in Table 5.1. Nativity of husband was excluded from the analysis due to interaction problems. The smaller number of native-born women married to foreign-born husbands made it difficult to carry out an analysis on them separately (see page 78).

The ANOVA revealed no statistical significant interaction among the background variables. Among the native-born women age and income are positively related to fertility, i.e., as these women progress in age, their family size also increases. The amount of variation explained by the respondent's age and age at first parity are statistically significant.

Table 5.1

Correlation and association coefficients between background factors and current family size of the native-born, GAFS, Edmonton

Predictors	
Covariates	**Raw regression coefficients**
1. Age	.082
2. Age at first parity	-.080
3. Family income	.012
Factors	**Eta**
4. Religion	.15
5. Rural-urban background while growing up	.11
6. Last occupation	.10
7. Education	.24
Multiple R^2	.614
Multiple R	.783

Note: Eta is the ratio of the square root of squares based on the unadjusted deviations for a predictor to the total sum of squares. It is the correlation ratio and indicates the ability of the predictor, using categories given, to explain the variation in the dependent variable.

Each of these three variables (age, age at first parity, and income) account for the variance in current family size among the foreign-born women as well. The pattern of their relationship is different from that of native-born women. From Table 5.2, we see that the age at first parity is related in the same direction (negative) as in the native-born. But income which is positively related among foreign-born women, is inversely related to current family size among native-born women. The chronological age and age at first parity show much stronger relation than income among native-born women. But in the case of the foreign-born, family income is more strongly related than the age and the age at first parity.

The nominal level variables and their association with current family size are expressed in terms of eta values in Tables 5.1 and 5.2. From these tables we make the following inferences. Among native-born women, the respondent's educational background is most important followed by religion. Rural-urban background in youth (up to age 12) and respondent's last occupation take the next place and their levels of association with the current family size are equal. These seven background variables explain more than 61 per cent of variation in the current family size.

The eta values (Table 5.2) show that the pattern of association is quite different among the foreign-born women. Among these women, the respondent's last occupation rather than education is the more important factor, and her education rather than religion is the second in importance. Religion and rural-urban background show equal levels of association.

Table 5.2

Correlation and association coefficients between background factors and current family size of foreign-born women, GAFS, Edmonton

Predictors Covariates	Raw regression coefficients
1. Age	.060
2. Age at first parity	-.082
3. Family income	-.165
Factors	**Eta**
4. Religion	.10
5. Rural-urban background while growing up	.11
6. Last occupation	.20
7. Education	.18
8. Husband's nativity	.05
Multiple R^2	.571
Multiple R	.756

Note: For the description of Eta see Table 4.1

Religion is not as important for foreign-born women as it is for the native-born, as far as current family size is concerned. Husband's nativity shows the smallest level of association among foreign-born women. These eight background variables explain more than 57 per cent of variance in current family size among foreign-born women (Table 5.2).

Though variation explained by the background variables is about the same (61 per cent among native-born and 57 per cent among foreign-born) in both the groups, the patterns of correlations and associations are quite important for both the groups, their relative importance is quite different for the two groups.

Table 5.3 gives a summary of multiple classification analysis relating selected background variables to current family size of the native-born women. A similar table (Table 5.4) is presented for the foreign-born women. These talbes show deviations of the current family size from the grand mean and the deviations adjusted (additively) for the effects of the other factors under consideration. They also give eta and beta values for these factors. These tables are supported by ANOVA Tables 5.A.1 and 5.A.2 given in the Appendix. These two ANOVA tables show that there is no statistically significant interaction between the main effects.

A positive deviation means that category mean is greater than the grand mean, and a negative deviation implies that the category mean is less than the grand mean.

Let us analyze the MCA tables considering each of the background variables.

Table 5.3

Summary of multiple classification analysis relating the selected background factors to current family size of native-born women, GAFS, Edmonton

Variable	N	Unadjusted deviations	Eta	Adjusted deviations	Beta
1. Religion					
Protestant	225	-.07		-.13	
Catholic	150	.29		.23	
Jewish and others	49	-.56		-.11	
			.15		.10
2. Rural-urban background while growing					
Rural	207	.08		-.08	
Town	91	.22		.08	
City	126	-.28		.07	
			.11		.04
3. Respondent's last occupation					
White collar	96	-.30		.09	
Clerical and service	302	.12		.00	
Blue collar	26	-.26		-.37	
			.10		.06
4. Respondent's education					
0-8 grade	22	1.16		.66	
9-13 grade but no post-secondary	229	.21		-.02	
Post-secondary	111	-.31		-.10	
Some university	62	-.62		.00	
			.24		.09

Grand mean 2.07

Table 5.4

Summary of multiple classification analysis relating the selected background variables and current family size of foreign-born women, GAFS, Edmonton

Variable	N	Unadjusted deviations	Eta	Adjusted deviations	Beta
1. Relgion					
Protestant	67	-.06		-.18	
Catholic	47	-.10		.02	
Jewish and others	23	.38		-.48	
			.10		.14
2. Rural-urban background while growing					
Rural or farm	34	-.02		.08	
Town	55	.21		-.03	
City	48	-.22		-.03	
			.11		.03
3. Respondent's last occupation					
White collar	40	-.36		-.04	
Clerical and service	76	-.01		-.07	
Blue collar	21	.72		.31	
			.20		.08
4. Respondent's education					
0-8 grade	25	.58		-.19	
9-13 grade but no post-secondary	48	-.03		-.15	
Post-secondary but no university	49	-.10		.12	
Some university	15	-.54		43	
			.18		.12
5. Nativity of husband					
Native-born	40	.14		.24	
Foreign-born	97	-.06		-.10	
			.05		.09

Grand mean 2.30

Religion

Table 5.3 shows that, among the native-born, controlling for other variables Catholics have a larger family size, whereas Protestant and "Jewish and Other" religious groups have a family size which is smaller than the grand mean. Before introducing the controls, the "Jewish and Other" group has a much smaller family size than the Protestant women. Looking at the adjusted deviations of religious categories for foreign-born women (Table 5.4), the pattern is about the same; i.e., Catholics have larger families than Protestants, and Protestants have larger families than the "Jewish and Other" group. The differential in non-Catholic groups is very small among the native-born women. The family size is much smaller for the "Jewish and Other" group compared to the Protestant women in the foreign-born group.

Other Canadian studies (Henripin, 1972 and Balakrishnan et al, 1975) also have reported a similar pattern between religion and family size. The influence of religion on fertility is more profound among the foreign-born women as compared to that of their native-born counterpart (beta values being .14 and .10 respectively). When the effect of the other variables is kept constant, the non-Catholic fertility changes more than that of the Catholic among native-born women. Controlling for the effects of other background variables causes both Catholic and non-Catholic fertility to change significantly among foreign-born women.

Rural-urban background

Looking at the unadjusted deviations in Tables 5.3 and 5.4, we find that in both the groups, those who grew up in towns are likely to have a larger family size than those who grew up in the rural or city

area. But when the effects of other variables are controlled, the patterns vary. Among the native-born women the rural-bred have a smaller family size than those who grew up in town or city, while among the foreign-born, those with the rural background have higher fertility than those who grew up in town or city. In both the groups, there is no difference in fertility between those brought up in town or city.

The beta values of the rural-urban background for the native-born and the foreign-born women are about the same. It is worth while to point out that the rural-urban background does not exercise any significant influence on the fertility of either of the groups. This finding contradicts the findings of Goldberg (1959, 1960), Freedman and Slesinger (1961), and Duncan (1965). In another study with the data from this survey, rural-urban background in youth was found to have no statistically significant influence on the fertility of the various ethnic groups (Beaujot, 1975).

Rural-urban fertility differentials have diminished in North America in recent years. In a country, such as Canada, the communication link between the rural and the urban areas is very strong because of the efficient transportation system and the mass media. Therefore, the rural areas are able to quickly absorb the city culture leading to a diminishing rural-urban differential over time.

Respondent's last occupation

Table 5.3 shows that among the native-born women, when the effects of other variables are controlled, the blue collar women have the smallest, and the white collar women have the largest family size. The relationship is quite different among the foreign-born females as seen

from Table 5.4. Foreign-born women who reported their last occupation as being "blue collar" have larger families than women reporting "clerical and services" or "white collar" occupations. When the effects of other variables are held constant, the white collar foreign-born women have slightly higher families than those with "clerical and services" occupation (2.10 and 2.07 respectively).

The relationship between the last occupation and current family size is roughly direct among the native-born women, whereas it is roughly U-shaped among the foreign-born.

Education

From Table 5.3, we see that with unadjusted deviations an inverse relation exists between education and fertility among the native-born. This inverse relation changes to a U-shaped pattern when we control for the effects of other variables.

For foreign-born women (Table 5.4), an inverse relation between education and fertility changes to a direct relation. This is perhaps so because better educated immigrants tend to settle down more easily and faster, and therefore, can afford larger family sizes. The less educated immigrants are likely to encounter encumrances to settling down and therefore tend to postpone childbearing, and consequently opt for lower family sizes.

The U-shaped relation between education and fertility among native-born women is in agreement with the Toronto study. When we do not control for the effects of other variables, education is inversely related to fertility in both the groups. But when the effects of other variables are controlled, the pattern of relation changes from inverse

to direct in the foreign-born.

The effect of respondent's education is statistically significant among native-born women. The eta and beta coefficients in Tables 5.3 and 5.4 respectively show that education is a relatively important predictor of the family size.

Nativity of husband

The husband's nativity was suspected to influence the fertility performance, so the husband's nativity was entered into the analysis of foreign-born women (Table 5.4). About four out of every ten foreign-born women took native-born husbands, and only about one out of every ten native-born women married foreign-born men. Among the foreign-born women, those that took foreign-born husbands have lower fertility than those married to native-born men. The eta and the beta coefficients show that the nativity of the husband becomes more important among the foreign-born women, once we control for the effects of the other variables.

The husband's nativity among the group of native-born women turned out to be significantly correlated with other independent (background) variables. Therefore, an analysis of the native-born women married to native-born men was not carried out separately. This group has the same level of current family size as the native-born group as a whole. The small number of native-born women (only 46 out of 420) married to foreign-born men does not affect the fertility of the native-born group.

Summarizing, we may conclude that husband's nativity is important for the foreign-born and not for the native-born group of women.

Table 5.5

A comparison of correlation and association coefficients between background factors and current family size of native-born and foreign-born women, GAFS, Edmonton

Predictor	Raw regression coefficient	
	Native-born	Foreign-born
1. Age	.082	.060
2. Age at first parity	-.080	-.082
3. Family income	.012	-.165
Factors	**Eta**	
4. Religion	.15	.10
5. Rural-urban background while growing	.11	.11
6. Last occupation	.10	.20
7. Education	.24	.18
8. Husband's nativity	not computed	.05
Multiple R^2	.614	.571
Multiple R	.783	.756

Table 5.6

Current family size and respondent's religion, GAFS, Edmonton

a summary

	Native-born			Foreign-born		
		Deviations			Deviations	
Religion	N	Unadjusted	Adjusted	N	Unadjusted	Adjusted
Protestant	225	-.07	-.13	67	-.06	-.18
Catholic	150	.29	.23	47	-.10	.02
Jewish and Others	49	.56	-.11	23	.38	.48
Eta		.15			.10	
Beta		.10			.14	

Source: Multiple Classification Analysis

Table 5.7

Current family size and respondent's rural-urban background

while growing up, GAFS, Edmonton

	Native-born			Foreing-born		
		Deviations			Deviations	
Rural-urban background	N	Unadjusted	Adjusted	N	Unadjusted	Adjusted
Rural or farm	207	.08	-.08	34	-.02	.08
Town	91	.22	.08	55	.21	-.03
City	126	-.28	.07	48	-.22	-.03
Eta		.11			.11	
Beta		.04			.03	

Source: Multiple Classification Analysis

Table 5.8

Current family size and respondent's last occupation, GAFS, Edmonton

Occupation	Native-born N	Native-born Deviations Unadjusted	Native-born Deviations Adjusted	Foreign-born N	Foreign-born Deviations Unadjusted	Foreign-born Deviations Adjusted
White collar	96	-.30	.09	40	-.36	-.04
Clerical & Services	302	.12	.00	76	-.01	-.07
Blue collar	26	-.26	-.37	21	.72	.31
Eta		.10			.20	
Beta		.06			.08	

Source: Multiple Classifciation Analysis

Table 5.9

Current family size and respondent's education, GAFS, Edmonton

Education	Native-born N	Native-born Deviations Unadjusted	Native-born Deviations Adjusted	Foreign-born N	Foreign-born Deviations Unadjusted	Foreign-born Deviations Adjusted
0-8 grade	22	1.16	.66	25	.58	-.19
9-13 grade but no post-secondary	229	.21	-.02	48	-.03	-.15
Post-secondary but no university	111	-.31	-.10	49	-.10	.12
Some university	62	-.62	.00	15	-.54	.43
Eta		.24			.05	
Beta		.09			.09	

Source: Multiple Classification Analyisis

5.4 Summary

Among the native-born, current family size is positively related to respondent's age and family income and is inversely related to age at first parity. Among the foreign-born, current family size is positively related to age, but is negatively related to respondent's age at first parity and her family income. Among the native-born women education is the most important factor influencing fertility while among the foreign-born, it is the respondent's occupation rather than education. The influence of religion is more pronounced among native-born women than among the foreign-born. The relationship between the last occupation and current family size is direct among the native-born and roughly U-shaped among the foreign-born. Though background variables are equally important for both the groups, the pattern of their relationship with current family of these two groups exhibits subtle differences.

CHAPTER 6

THE ROLE OF INTERMEDIATE VARIABLES

6.1 Introduction

In the first chapter we have mentioned that we shall be using framework of intermediate variables by Davis and Blake (1956) to explain the differentials in fertility of the native-born and the foreign-born women. According to this framework, because societies differ in their social organization, they utilize different intermediate variables, or their combination to regulate their fertility. Davis and Blake have discussed eleven such intermediate variables. There are serious data limitations in regard to the intermediate variables in the GAFS enquiry. We shall use proxies for the measurement of the intermediate variables to strengthen the analysis.

Based on the available data, we shall first discuss the use and non-use of contraception, age at first marriage, abortion and sterility. In modern societies such as Canada, fertility is predominantly regulated by the use and non-use of contraception. Therefore, it becomes more or less meaningless to consider such intermediate variables as permanent celibacy, abstinence and voluntary foetal mortality, etc. in the context of such a population as the one under consideration in this thesis.

6.2 Data problems

Data on intermediate variables are missing for a large number of cases. The use and non-use of contraception, age at first marriage,

abortion and sterility are the variables which respondents do not like to talk about for fear of encroachment on privacy. Because of the large number of cases with missing data, we have first attempted just to cross-tabulate the values of these variables by the nativity of the women and use the chi-square procedure to test the significance in difference between the foreign-born and native-born. Towards the end of this chapter, we carry out a Multiple Classification Analysis using proxies for contraceptive use as independent variables and current family size as dependent variable.

6.3 Use and non-use of contraception

The use and non-use of contraception is the most important factor in regulating human fertility in modern societies. Contraception can be realized by a wide variety of methods. Contraceptives can be chemical or mechanical, or otherwise. It is not the use of contraception alone that is important in modern societies (because usually a large proportion utilizes them), but the kind of measure used is important, since all methods vary in their effectiveness. The relative effectiveness of some of the contraceptives is as follows:

Failure rates of birth control methods

Birth control pill	0.5 (theoretically 0 if no pills are forgotten)
IUD	1.5 - 8
Condom	10 - 15
Diaphragm	10 - 15
Vaginal contraceptives	15 - 25
Rhythm method	15 - 30
Withdrawal	20 - 30

The above rates should be read as "... pregnancies in 100 women using the .... method for 1 year."

Source: Cherniak and Feingold, The Birth Control Handbook, 1974, Montreal.

Cherniak and Feingold (1974:38) describe the effectiveness of a contraceptive as follows:

> "The effectiveness of any birth control method is a measure of how well the method protects a woman from becoming pregnant. The failure rate is another way of describing the effectiveness of birth control method; the failure rate is a measure of how many women become prenant while using the method. For example, the diaphragm is about 90 per cent effective, that is, it has a failure rate of about 10 per cent; this means that out of 100 women using the diaphragm, 10 become pregnant and 90 do not become pregnant.
> Actually, it is not accurate just to say that the diaphragm has an effectiveness of 90 per cent or failure rate of 10 per cent. The effectiveness of failure rate of a birth control method should be described in terms of a time period. Therefore, a diaphragm is described as having an effectiveness of 90 per cent per year, or a failure rate of 10 per cent per year; this means out of 100 women who use a diaphragm for one year, 10 become pregnant. The use of all birth control methods is subject to human error. Even if used correctly, all methods other than the Pill do not always prevent pregnancy. .....".

In the present study, nineteen different categories of birth control methods have been considered. They are: Abstinence, Rhythm (safe period), Withdrawal, Douche, Breast feeding, Condom, Diaphragm (cap), Foam, Jelly or Cream, Suppositories, Tampon or Sponges, The pill, Injection, Male sterilization, Female sterilization, Abortion, Other and None.

According to our theoretical framework if a group is using some kind of contraception, it is trying to put a negative value on its fertility, and if not, a positive value. Not only the differences in actual use, but differences in attitude and knowledge of various birth

control also result in differential fertility among the groups. Most of the respondents in our study have given information about their attitude and knowledge, it is the actual use of birth control, where information is scanty.

Tables 6.1 through 6.4 give the attitude of the native-born and the foreign-born women towards birth control. Table 6.1 shows that about 89 per cent of the native-born and about 75 per cent of the foreign-born women approve of the use of birth control for one or another reason. Among native-born women, 5.7 per cent disapprove and another 5.7 per cent neither approve nor disapprove of the use of birth control. Among the foreign-born women, about 13 per cent disapprove and about another 12 per cent neither approve nor disapprove of birth control.

The chi-square test shows that differences in the approval of birth control by nativity are significant at .01 level. These differences in the attitude towards birth control are likely to lead to the differences in the actual use of birth control methods by the two groups of women.

Table 6.2 gives individual reasons for approving the use of birth control by the native-born and the foreign-born women. The individual reasons listed for the approval of birth control are:

1. So that the couple can have the number of sons and daughters they want
2. The couple does not want to have children
3. So that the woman can work
4. So the the couple can have their children when they want them
5. Health of the mother
6. Other or combinations
7. Don't know

Table 6.1

Approval of birth control by nativity of married women, GAFS, Edmonton

Nativity	Approve	Disapprove	Neither Approve nor Disapprove	Total
Native-born	500 (88.7)	32 (5.7)	32 (5.7)	564 (100)
Foreign-born	129 (74.6)	23 (13.3)	21 (12.1)	173 (100)
Total	629 (85.3)	55 (7.5)	53 (7.2)	737 (100)

Note: The number in parentheses indicates the percentage of row total.

Table 6.2

The individual reasons for the approval of birth control by nativity, GAFS, Edmonton

Nativity	Individual Reasons							Total
	1	2	3	4	5	6	9	
Native-born	59 (11.9)	13 (2.6)	2 (0.4)	344 (69.2)	58 (11.7)	20 (4.0)	1 (0.2)	497 (100)
Foreign-born	18 (13.7)	6 (4.6)	4 (3.1)	73 (55.7)	24 (18.3)	6 (4.6)	0 (0.0)	131 (100)
Total	77 (12.3)	19 (3.0)	6 (1.0)	417 (66.4)	82 (13.1)	26 (4.1)	1 (0.2)	628 (100)

Note: The number in parentheses indicates the percentage of row total.

Chi Square=15.9*

*Significant at .01 level

Reasons:
1. So that the couple can have the number of children they want.
2. The couple does not want to have children.
3. So that the women can work.
4. So that couple can have their children when they want them.
5. Health of the mother.
6. Other or combinations.
7. Don't know.

Note: The respondents were permitted to select only one of the given reasons.

Both groups of women approve birth control predominantly for the fourth reason - so that the couple can have their children when they choose. About 69 per cent of the native-born and about 56 per cent of the foreign-born women approve of birth control for this reasons. For all other individual reasons, it is clear from this table that foreign-born women approve of birth control in higher percentage than native-born women.

The individual reasons for approving birth control differ at the statistically significant level.

Table 6.3 shows the social reasons for the approval of birth control by native-born and foreign-born women. Birth control is approved by these women for the following social reasons:

1. Human beings ought to be able to decide their fate
2. Less unemployment with fewer labourers
3. Small population is good for Canada
4. The government will not have to build as many schools and hospitals
5. Our natural resources will last longer
6. Other or combinations.

The first social reasons that human beings ought to be able to decide their fate is given by most of the native-born women (75.6 per cent) and most of the foreign-born women (74.2 per cent) for the approval of birth control. The value of the chi-square suggests that there are no statistically significant differences in the social reasons given for the approval of birth control by these two groups of women. This means that individual rather than social reasons account for the differences in attitudes towards birth control.

Table 6.3

The social reasons for the approval of birth control by nativity, GAFS, Edmonton

Nativity	Social Reasons						Total
	1	2	3	4	5	6	
Native-born	360 (75.6)	15 (3.2)	39 (8.2)	2 (0.4)	38 (8.0)	38 (4.6)	476 (100)
Foreign-born	92 (74.2)	4 (3.2)	10 (8.1)	0 (0.0)	12 (9.7)	6 (4.8)	124 (100)
Total	452 (75.3)	19 (3.2)	49 (8.2)	2 (0.3)	50 (8.3)	28 (4.7)	600 (100)

Chi square= .90

Social reasons:
1. Human beings ought to be able to decide their fate themselves.
2. Small population is good for Canada.
3. The government will not have to build as many schools and hospitals.
4. Our natural resources will last longer.
5. Less unemployment with fewer labourers.
6. Other or combinations.

Note: The numbers in parentheses indicates percentages.

Table 6.4 shows the attitude of husbands toward birth control by the nativity of wife. About 92 per cent of husbands of the native-born women and about 80 per cent of husbands of the foreign-born women approve of birth control. The value of chi-square suggests that the difference between the attitude of husbands towards birth control is statistically significant at .01 level.

Because of the small number of respondents and their husbands disapprove of birth control, no further analysis has been carried out. Table 6.1 to 6.4 show that a higher percentage of the native-born women approve of birth than the foreign-born. From this we infer that the native-born have a more positive attitude towards birth control than the immigrants.

In the Toronto study also, women were overwhelmingly in favour of birth control. 86 per cent approved of contraception with any qualification while another 7 per cent approved with some qualifications.

6.3.1 Knowledge of birth control

Table 6.4 and Table 6.6 reveal the respondent's knowledge of the risk of pregnancy and the effectiveness of birth control methods, respectively. Table 6.5 lists the responses of the native-born and the foreign-born women to the question - "When do you think is the greatest risk of getting pregnant during the menstrual cycle?" The responses are categorized as:

1. During menstruation
2. During the days preceding menstruation
3. During the days after menstruation
4. During the mid-period of cycle

Table 6.4

Husband's approval of birth control by nativity of wife, GAFS, Edmonton

Nativity of Wife	Does husband approve of birth control? Yes	No	Total
Native-born	472 (92.4)	39 (7.6)	511 (100)
Foreign-born	123 (80.4)	30 (19.6)	153 (100)
Total	595 (89.4)	69 (10.4)	665 (100)

Chi square= 16.87 Significance level= .01

Note: The number in parentheses indicates the percentage of row total.

Table 6.5

Knowledge of safe period, GAFS, Edmonton

Q: When do you think is the greatest risk of getting pregnant during the menstrual cycle?

	Duration of menstrual cycle						
Nativity	1	2	3	4	5	6	Total
Native-born	4 (0.9)	58 (13.4)	76 (17.5)	287 (66.1)	2 (0.5)	7 (1.6)	434 (100)
Foreign-born	2 (1.8)	15 (13.2)	19 (16.7)	77 (67.5)	0. (0.0)	1 (0.9)	114 (100)

*Chi square= 1.50

Duration of menstruation cycle:
1. During menstruation.
2. During the days preceding menstruation.
3. During the days after menstruation.
4. During the mid-period of cycle.
5. During the days preceding and after menstruation.
6. Other combinations.

Note: The number in parentheses indicates the percentage of row total.

*Not significant at .05 level.

5. Don't know

6. During the days preceding and after menstruation

7. Other combinations

Those women who indicated that the risk of getting pregnant was the greatest during the mid-period of the cycle, are aware of the unsafe period. About 66 per cent of the native-born and about 67 per cent of foreign-born women have correct knowledge of the unsafe period. The chi-square test shows that there are no significant differences in the knowledge in regard to unsafe period between native-born and foreign-born women. It means not the knowledge of birth control, but the attitude towards it differs by nativity (Tables 6.1 to 6.5). The difference in attitude towards birth control is likely to contribute to the differential use of birth control methods by native-born and foreign-born women.

Table 6.6 gives the answers of native and foreign-born women to the question - "Which method other than abstinance is the most effective?" Most women (in both the groups) consider the pill and sterilization to be the most effective. Higher percentage of native-born women as comapred to the foreign-born consider these two methods to be the most effective. This difference in belief may contribute to the lower fertility of the native-born. Other "non-effective" methods are considered to be most effective by a relatively larger percentage of foreign-born than native-born women, however, the number of such foreign-born women is very small and unlikely to be consequential to the differentials in fertilility.

Table 6.6 suggests that more native-born women compared to the foreign-born consider the pill and sterilization to be the most effective.

Table 6.6

Knowledge of contraceptive effectiveness, GAFS, Edmonton

Q: In your opinion which birth control method (other than abstinence) is the most effective? One choice.

Nativity	METHODS														
	Rhythm	Withdrawal	Douche	Condom	Diaphragm	Foam	Jelly or Cream	Intra-uterine device	Pill	Injection	Male Sterilization	Female Sterilization	Abortion	Other	None
Native-born	8 (1.8)	5 (1.2)	0 (0.0)	10 (2.3)	7 (1.6)	1 (0.2)	2 (0.5)	21 (4.8)	259 (59.7)	0 (0.0)	30 (6.9)	88 (20.3)	1 (0.2)	0 (0.0)	1 (0.2)
Foreign-born	4 (3.1)	6 (4.6)	2 (1.5)	6 (4.6)	4 (3.1)	0 (0.0)	0 (0.0)	7 (5.4)	73 (56.2)	1 (0.8)	10 (7.7)	13 (10.0)	1 (0.8)	3 (2.3)	0 (0.0)

Note: The number in parentheses indicates the percentage of row total.

Chi square = 38.45

Significance level = .01

6.3.2 Use of birth control

Table 6.7 shows that only three out of 173 foreign-born women, and only 21 out of the 564 native born answered the question dealing with actual use of birth control. The small number of women who answered this question makes it difficult to interpret the differences in the actual use of birth control between the native and the foreign-born women. Hence, we have used the respondent's education, religion, and approval or disapproval of abortion as proxies for contraceptive use. We have carried out a MCA using these three as independent variables and current family size as the dependent variable. The results of this analysis are discussed elsewhere in this chapter.

6.4 Age at first marriage

Age at first marriage varies from society to society. The developing societies usually have lower age at marriage than industrial societies. Age at first marriage influences marital fertility. The lower age at marriage leaves a larger proportion of women exposed to the risk of pregnancy. Marriage is a social institution. There is a normative system which surrounds marriage, and these societal norms determine the age at marriage in a society. We have shown in the previous chapter that the native-born and the foreign-born women differ in their background factors, including socio-cultural factors. Therefore, the two groups are likely to have different ages at marriage. In other words, both the groups are likely to have different age at entry into a socially acceptable sexual union.

Table 6.7

Birth control method used most by nativity of women, GAFS, Edmonton

Nativity	Contraceptive									
	Abstinence	Rhythm	Withdrawal	Douche	Breast feeding	Condom	Diaphragm	Foam	Jelly	None
Native-born	4 (4.9)	4 (4.9)	3 (3.7)	2 (2.5)	1 (1.2)	2 (2.5)	3 (3.7)	1 (1.2)	1 (1.2)	60 (74.1)
Foreign-born	1 (3.0)	2 (6.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	30 (90.9)

Chi-square = 6.39

Note: The number in parentheses indicates the percentage of row total.

The economic background factor is also associated with age at marriage. Silver (1965-66) has shown that age at marriage and marriage rates are strongly affected by economic fluctuations in different cultures. The native-born and the foreign-born women in our sample differed on economic variables, and this is another reasons they are likely to have different age at marriage. Both the Princeton and Growth of American Families studies have shown an association between an early age at marriage, shorter birth intervals, and a larger desired family size; and higher ultimate fertility (Hawthorn, 1970:89).

Unfortunately, there is severe paucity of information on the age at first marriage in the present study. The information that is available, is presented in Table 6.8. There are only 24 native-born and 11 foreign-born women for whom information on age at marriage is available. Table 6.8 shows that about 54 per cent of these native-born and only about 36 per cent of the foreign-born women married under the age of 20. This shows that in the absence of contraception, the native-born are more likely to place a positive value on fertility than the foreign-born on this intermediate variable. But in the absence of information on this variable and widespread approval of contraception, the influence of age at first marriage on fertility cannot be determined conclusively.

We feel as do Balakrishnan et al (1975:40) that age at marriage in contemporary Canada is not a variable with much demographic significance.

6.5 Abortion

Induced abortion is another important intermediate variable.

Basically, abortion is sought to terminate an unwanted pregnancy. A pregnancy may be unwanted because of various reasons such as, a malformed foetus, or conception resulting from incest or rape causing an illegitimate birth. Carrying to full term the pregnancy may pose a threat to mother's mental or physical health. Married couples may seek abortion, if they believe they already have enough children to care for. An additional child may be a financial strain.

Other social reasons for a married woman to seek an abortion could be the non-support from the husband due to alcoholism, invalidism of husband, or inability to pursue desired goals (Bouma and Bouma, 1975:78-81).

In Canada, there has been an increase in the number of abortions since 1970 (Appendix, Table 6.A1). This increase is attributed to the liberalizing the grounds for abortion by change, to the Criminal Code in 1969. A women can now seek therapeutic abortion (under specific circumstances) which was prohibited hitherto (Harling and Hunter, 1971; and Morah, 1975).

Table 6.9 gives the number of abortions by nativity as available from this study. Among the native-born women only five admitted to have had an abortion and among the foreign-born, only one. Though the native-born women are more likely to resort to it, the number of abortions among both groups is too small to make any meaningful judgment. There are obvious difficulties in collecting information on the actual number of abortions sought by a respondent. Firstly, abortion is not legal in Canada on all grounds, except for the health of the mother. Secondly, seeking an abortion remains a social and religious taboo. Therefore, researchers resort to the attitude of respondents toward the issue of abortion.

Table 6.8

Age at first marriage of women by nativity, GAFS, Edmonton

Nativity	Age									Total
	16	17	18	19	20	21	22	23	28	
Native-born	2 (8.3)	2 (8.3)	3 (12.5)	6 (25.0)	2 (8.3)	6 (25.0)	1 (4.2)	1 (4.2)	1 (4.2)	24
Foreign-born	1 (9.1)	0 (0.0)	2 (18.2)	1 (9.1)	2 (18.2)	3 (27.3)	2 (18.2)	0 (0.0)	0 (0.0)	11

Chi-square = 5.35*

*not significant at .05

Note: The number in parentheses indicates the percentage of row total.

Table 6.9

Abortions by nativity, GAFS, Edmonton

Nativity	Never had	Ever had	Total
Native-born	599 (99.1)	5 (0.9)	564 (100)
Foreign-born	172 (99.4)	1 (0.6)	173 (100)
Total	731 (99,2)	6 (0.8)	737 (100)

Note: The numbers in parentheses indicate the percentage of row total.

Table 6.10 gives the attitude of the native-born and the foreign-born toward abortion. It provides women with eight hypothetical conditions. Except where she could not afford another child or if pregnancy interfered with her career, the native-born women are more likely to seek abortion than the foreign-born. For the same two reasons, the foreign-born women are likely to seek abortion more frequently than the native-born. This means, that the foreign-born women are more likely to seek abortion for economic reasons. Out of these eight reasons, the responses of the native-born and the foreign-born differ at a statistically significant level only if pregnancy seriously endangered respondent's life. Native-born women are more likely to seek an abortion for this reason as compared to foreign-born women.

An overwhelming majority of both native and foreign-born groups of women would have an abortion if their health was in danger, if the child was likely to be abnormal or if the conception was due to rape.

6.6 Sterility

A society which has a large proportion of sterile women is more likely to have lower fertility. Sterility in a population can occur due to health reasons. It may be surgically achieved as well to prevent pregnancy. In the present study, a woman that does not have a child, although she does not use any contraception, is considered sterile.

Table 6.11 gives the occurence of sterility among women by nativity. Only 2.3 per cent of women among the native-born are sterile. The occurence of sterility is the same among the foreign-born women as well. This means sterility is not responsible for the differentials in fertility of these two groups.

Table 6.10

The attitude of married women towards abortion by nativity, GAFS, Edmonton

Condition	Native-born		Foreign-born		Chi square
	Yes	No	Yes	No	
1. Pregnancy seriously endangered physical health	461 (88.1)	62 (11.9)	130 (81.8)	29 (18.2)	6.92*
2. Child was likely to be abnormal	405 (80.7)	97 (19.3)	120 (77.9)	34 (22.1)	3.64
3. Conception due to rape	340 (68.8)	154 (31.2)	99 (66.4)	50 (33.6)	3.52
4. Conception while unmarried	120 (24.8)	363 (75.2)	31 (21.1)	116 (78.9)	4.09
5. Could not afford another child	117 (22.3)	408 (77.7)	38 (24.1)	120 (75.9)	3.58
6. Had desired no children	88 (16.6)	442 (83.4)	32 (20.4)	125 (79.6)	4.65
7. Pregnancy interfered with career	42 (7.8)	494 (92.2)	14 (8.5)	149 (91.5)	3.37
8. Husband objected to the child	144 (29.5)	334 (70.5)	41 (26.1)	115 (73.9)	3.71

Note: The number in parentheses indicates the percentage of respondents.

*significant at .05 level.

Table 6.11

Sterility by nativity of women, GAFS, Edmonton

Nativity	Fertile	Sterile	Total
Native-born	551 (97.7)	13 (2.3)	564 (100)
Foreign-born	169 (97.7)	4 (2.3)	173 (100)
Total	720 (97.7)	17 (2.3)	737 (100)

Note: The numbers in parentheses indicate the percentage of row total.

6.7 Multiple Classification Analysis

We have noticed that there is dire lack of information on the intermediate variables, particularly on the actual use and non-use of contraception. We are suggesting to employ the respondent's education, religion and approval or disapproval of abortion as proxies for contraceptive use. The less educated respondents are less likely to use contraception than the more educated. Non-Catholic women are more likely to use contraception than Catholic women. Those who approve of abortion are more likely to use contraception than those who do not approve of abortion. In other words, the less educated the Catholics and those who do not approve of abortion have positive value on fertility; and the more educated the non-Catholics and those who approve of abortion, a negative value on fertility.

We have carried out an MCA of current family size on education, religion and approval or disapproval of abortion. To control for age and income, we use them as covariates. The analysis for native-born and foreign-born women is done separately. The analysis of variance was used to check for interaction between independent variables. There was no interaction at a statistical significance level among these three independent variables.

Though the final analysis was carried out with only three independent variables, five (respondent's education, contraceptive approval, religion, labour force participation, and aboriton) were used in the first run. Keeping in mind the Davis-Blake (1956) framework, these variables were grouped and set at 0 and 1. The value of 0 is indicative of negative fertility value and the value of 1 a postive fertility value.

The values for these variables are:*

Contraception approval	approval	0
	disapproval	1
Labour force participation	participant	0
	non-participant	1
Religion	non-Catholic	0
	Catholic	1
Abortion	approved under all circumstances	0
	disapproved under all circumstances	1

Education had the following categories:

0 - 8 grade

9 - 13 grade

Post secondary but no university

Some university

Contraceptive approval had to be discarded from the analysis because it showed statistically significant interaction with religion and education. There was only one female in each of the two groups, who had not participated in the labour force. Therefore, labour force participation was also removed from the analysis.

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* Approval of contraceptive, being a labour force participant, being a member of non-Catholic denomination, approval of abortion and high education affect fertility in a negative direction. Respondents falling in these categories are more likely to use contraception. Contrary to this, disapproval of contraception, being a non-participant in the labour force, being a Catholic, disapproval of abortion put a positive value on fertility. Respondents falling in these categories are less likely to use contraception.

A new independent variable age at first marriage was entered in the next run. The variable was coded as:*

Age at first marriage	over 20	0
	under 20	1

The program considered this variable constant due to a large number of cases with missing data. Consequently the processing of the program failed to take place.

The final analysis was carried out using the respondents' age and family income as covariates; and education, religion, and approval or disapproval of abortion as factors. The results of this analysis are presented in Tables 6.12 and 6.13.

Table 6.12 shows that among the native-born women the more educated (with post secondary or more education) and non-Catholics have fertility lower than the grand mean, whereas the contrary is true for Catholics and the less educated (up to grade 13). This is so because the Catholic and the less educated women are less likely to use contraception as compared to the non-Catholic and the better educated women. In this group (native-born women), those who approve of abortion have lower current family size than the grand mean, and those who disapprove of abortion have higher current family size than the grand mean (unadjusted deviation, Table 6.12). But when we control for religion and education, those who approve of abortion have 2.06 children and those who disapprove of abortion have 2.01 children. The difference between the family size of these two

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* A higher age at marriage affects fertility positively, whereas a lower age at marriage affects it negatively.

Table 6.12

Summary of multiple classification analysis relating the selected intermediate variables and current family size of native-born women, GAFS, Edmonton

Variable	N	Unadjusted deviation	Eta	Adjusted deviation	Beta
1. Education					
0-8 grade	26	1.07		0.45	
9-13 grade	295	0.13		0.17	
Post-secondary but no university	124	-0.22		-0.21	
Some university	68	-0.58		-0.50	
			0.21		0.16
2. Religion					
Non-Catholic	345	-0.14		-0.11	
Catholic	168	0.29		0.24	
			0.12		0.10
3. Abortion					
Approve	449	-0.03		0.01	
Disapprove	64	0.22		-0.04	
			0.05		0.01

Grand mean 2.05

Multiple R^2 .292

Multiple R .540

Table 6.13

Summary of multiple classification analysis relating the selected intermediate variables and current family size of foreign-born women, GAFS, Edmonton

Variable	N	Unadjusted deviation	Eta	Adjusted deviation	Beta
1. Education					
0-8 grade	29	1.06		0.36	
9-13 grade	48	-0.30		-0.12	
Post-secondary but no university	49	-0.09		0.12	
Some university	18	-0.65		-0.58	
			0.31		0.15
2. Religion					
Non-Catholic	98	0.09		0.10	
Catholic	46	-0.19		-0.21	
			0.07		0.08
3. Abortion					
Approve	120	-0.15		-0.13	
Disapprove	24	0.76		0.63	
			0.19		0.15

Grand mean 2.32

Multiple R^2 .271

Multiple R .521

categories is negligible. This result is surprising. Given that the MCA does not yield a high explanatory power, the statistical testing of the difference cannot be pursued. Further a detailed study is needed with better measures of the explanatory variable to probe into this area.

Looking at the unadjusted deviations, we find that among the foreign-born, those with less than grade 9 education, non-Catholics and those who disapprove of abortion, have fertility more than the grand mean (Table 6.13). If we control for the effects of religion and abortion, we find that respondents with post-secondary education but no university have slightly higher fertility than the grand mean, but respondents with 9-13 grade or more education lower than the grand mean. From this we conclude that the current family has a bimodal distribution with regard to education.

We mentioned earlier that these three variables (education, religion and approval or disapproval of abortion) have been used as proxies for contraceptive use. The less educated, Catholics and those who disapprove of abortion are less likely to use contraceptives. In the foreign-born group also, like in their native-born counterpart, the less educated and those who disapprove of abortion have higher fertility than the grand mean. But unlike their native-born counterpart, the foreign-born non-Catholics have higher fertility than the grand mean. It means if our conjuncture is right, the foreign-born, non-Catholic women use contraception less frequently than their native-born counterpart. It is due to this that the foreign-born as a whole have higher mean current family size than the native-born women.

6.8 Summary

Though there are serious data constraints, contraceptive use turns out to be the important intermediate variable regulating fertility. Age at first marriage, abortion and sterility do not exhibit significant differences by nativity. A higher percentage of the native-born than foreign-born women approve birth control. The knowledge about the effectiveness of various types of contraception of these two groups differs significantly. The foreign-born women are more likely to seek abortion for economic reasons and the native-born are more likely to seek abortion for non-economic reasons such as danger to mother's health.

Differential in age at first marriage, abortion or sterility are not the causes of lower fertility of native-born as compared to the foreign-born women, however, the more frequent approval of contraception on the part of the native born and their husbands is the cause. An MCA based on proxies for contraceptive use shows that although both groups of women use contraception at relatively high frequency, the non-Catholic foreign-born use less frequently than the non-Catholic native-born. Thus, in the present study, unlike in other similar studies the foreign-born women show slightly higher fertility than the native-born.

CHAPTER 7

SUMMARY AND CONCLUSIONS

This thesis has attempted to examine and explain the fertility differentials among the foreign-born and the native-born married women of 18-54 years old living in Edmonton, Alberta at the time of the survey. These two groups of women are used analogous to the sub-societies of the fertility framework of "intermediate variables" by Davis and Blake (1956). We have argued that the foreign-born are not a random sample, rather they constitute a selective group. Therefore the foreign-born differ from the native-born in demographic (age and age at first parity), socio-cultural (rural-urban background and religion), and economic (education, occupation and income) background factors. As a result of the difference in background factors the two groups will place differential fertility values (negative or positive) on various intermediate variables such as, use and non-use of contraception and also select a few intermediate variables in particular to regulate fertility. The acquisition of differential fertility values and the differential patterns of singling-out of the intermediate variables result in the differential fertility.

Data for this study have been taken from the Growth of Alberta Families Study. 1045 women were interviewed in Edmonton from November 16, 1973 to February 15, 1974. 737 of the 1045 were married and 173 of the married women were foreign-born.

Chapter 4 is devoted to establish fertility differentials

by nativity of the respondents. The hypotheses developed in the second chapter have been tested in this chapter. Current family size of foreign-born women is higher than that of the native-born, but desired and expected family sizes of the foreign-born are smaller than those of the native born women. These differences in family size are not statistically significant and therefore, we are unable to consider our hypothesis that foreign-born women have lower current fertility than the native-born women. The hypothesis that women born in the Atlantic provinces have the largest family size followed in descending order by those born in the Prairie provinces, Ontario, British Columbia and Quebec is not conclusively supported by our data.

The data on foreign-born women support the hypothesis that migrant women from higher fertility areas have higher fertility. The women born in Italy and Poland have the highest fertility among the foreign-born group and are followed in descending order by those born in the Ukraine, Western Europe (West Germany, U.K., and France), and the United States.

The current family size shows roughly a J-shaped relation with the distance between place of origin and the place of destination of native-born respondents. The short distance internal migrants have lower fertility than the non-movers and the other "long distance" migrants. The hypothesis that among the internal migrants the distance between the place of origin and the place of destination tends to be inversely related, is not tenable. The notion that migration affects fertility in a negative direction is only true in the case of "short distance" internal migrants. Obviously cultural background is more important than distance.

The influence of age is statistically significant on the fertility of both groups of women. The variation explained by age of the respondents in current family size is 32 per cent for native-born women and about 23 per cent for the foreign-born. The foreign-born women under 25 and of age 30 to 34 have, expect and desire smaller family sizes than their native-born counterpart. This supports the hypothesis that the younger migrant women have lower fertility than their native-born counterpart.

Age structure turns out to be a crucial variable to explain the fertility differential between native-born and foreign-born women. The foreign-born women are more evenly distributed among all the age groups, whereas there is a larger proportion of women in the younger (18-24) age group among the native-born women. These younger women are unlikely to have completed their family size. This is one reason why native-born women have smaller current family sizes than the foreign-born women have and the variation explained by age in current family size is higher among the native-born than among the foreign-born women. The year of migration seems to have also affected the fertility of internal migrants in our data. Those who migrated during the Depression period have and expect to have lower fertility than those who migrated prior to the 1930's. There is an increase in family size for the immigrants of the post-war years (1945-54). Current family size remained about two among the women migrants of 1955-1969. The immigrants of the 1970's have lower fertility than of the earlier immigrants. These are still young and have not yet completed their family size. The hypothesis that the year of migration is associated with the level of fertility of immigrants is confirmed for the current family size variable only. In

our data, we have observed that having a foreign-born parent, particularly mother, accounts for higher fertility, as during the process of socialization the influence of mother on the daughter is usually stronger than that of the father. The nativity of respondent's parents explained statistically significant variance in current family size but not in expected and desired family size.

Respondents of native-born parentage are called "third-generation"; respondents born of foreign or mixed parentage or those who migrated to Canada after age 12 are called "second-generation"; and those who are foreign-born and migrated to Canada at age 12 or before are termed "first-generation". Among the three generations, the third-generation has the lowest fertility followed in descending order by first and the second-generation. These differences in current family size are statistically significant. But expected and desired fertility do not differ significantly by generation. We have observed that differences in current family size of these generations are due to the differences in their age structure. Our findings also confirm the hypothesis that the younger (under 35) foreign-born women have lower fertility than the corresponding native-born, whereas, older (over 35) foreign-born women, very close to their native-born counterpart.

There are no significant differences in expected and desired family size by respondent's generation of Canadian residence; however, the younger first-generation women, particularly under 25 expect and desire smaller families than the second and third-generation women confirming the hypothesis that the total expected and desired family size of the younger foreign-born women is smaller than that of their native-

born counterpart.

The hypothesis is that second generation women have current, expected and desired fertility very similar to that of the third-generation women, and first-generation women have markedly different current, expected and desired fertility than that of the third-generation women; it is not yet confirmed for current family size; however, the pattern of expected family size by generation of Canadian residence is in line with this hypothesis. Desired family size does not vary by generation.

The fifth chapter establishes that native-born and foreign-born women differ in their background. A multiple classification analysis is carried out by using background variables as independent variables and current family size as the dependent variable. The background variables used are: respondent's religion and rural-urban background while growing up, education, last occupation, family income, age and age at first parity.

Background variables turned out to be important factors in determining the level of fertility of both the groups of women. The patterns of their relationship with current family size were quite dissimilar.

Age and family income are positively related among native-born women. Age at first parity among this group of women is negatively related to the current family size.

Among the foreign-born women, like among the native-born, age at first parity is negatively related and the respondent's age is positively related to current family size. But unlike their native-born counterpart, their family income is inversely related to family size.

Among the foreign-born women, like among the native-born, age at first parity is negatively related and the respondent's age is positively related to current family size. But unlike their native-born counterpart, their family income is inversely related to family size. Among the native-born women, age and age at first parity show stronger relationship than income, with their family size; whereas, family income is more strongly related than age and age at first parity with the current family size of foreign-born women.

The patterns of relationship between nominal level of background variables and current family size are quite different for native-born and foreign-born women. Among native-born women, educational background is the most important and religion is second to education in importance. Respondent's last occupation rather than education is the more important among foreign-born; also, respondent's education rather than religion is second in importance.

The influence of religion is stronger on the fertility of native-born women as compared to the other group's. When the effects of other background variables are controlled for, differential in family size of the native-born non-Catholic groups diminishes. When the effects of other variables are kept constant, religion exercises a stronger influence on the fertility of foreign-born women than on the native-born. Catholics have the highest fertility followed in descending order by Protestants and "Jewish and others".

Rural-urban background does not have much of a demographic impact on the fertility of both groups of women. This is more visible among the native-born than among the foreign-born. The relationship between the last occupation and current family size is roughly direct

among the native-born and roughly inverse or irregular among the foreign-born.

Before controlling for the effects of other background variables, education exhibited an inverse relationship with the current family size of both the groups of women. But when the effects of other variables were kept constant this relationship changed to a U-shaped pattern among the native-born women and to a direct pattern among the foreign-born women. The effect of education is significant in both the groups.

The effect of husband's nativity on current family size turned out to be negligible among the native-born and the foreign-born women.

From the foregoing discussion we deduce that the pattern of relationship of background factors is quite dissimilar among the native-born and foreign-born women. This difference in backgrounds leads to differential use of intermediate variables.

Analysis has been carried out on four intermediate variables, namely use and non-use of contraception, age at first marriage, abortion, and sterility. There are serious data constraints in view of the missing data. To overcome this, the analysis has been carried out employing proxies for contraceptive use. Age at marriage abortion and sterility do not exhibit significant differences by nativity. We find interesting differentials by nativity in the attitude toward contraception, and in the knowledge of their effectiveness.

Though the native-born women are more likely to resort to abortion, the number of abortions among both the groups is too small to make any meaningful judgment. There are interesting differences in the attitude of women to abortion by nativity. The foreign-born women are more likely to seek abortion for economic reasons. The native-born are

more likely to seek abortion for health or social reasons. The difference by nativity in the likelihood of seeking an abortion is statistically significant only on a legal ground, i.e., if the mother's health is in danger.

It is not the age at first marriage or the extent of abortion or the level of sterility, but the use and non-use of contraception that turns out to be an important intermediate variable to explain the fertility differential by nativity. The analysis exhibits that although both groups of women use contraception to regulate fertility, the non-Catholic foreign-born women use it less frequently than their non-Catholic native-born counterpart resulting in a slightly higher fertility among the native-born.

7.1 Data limitations and suggestions for further research

An important limitation of the present study is a lack of information on the intermediate variables. Collecting information on such intermediate variables as use and non-use of contraception, abortion, sterility and age at first marriage needs attention. The information on these variables is too personal and therefore sensitive to elicit from respondents. Researchers should make sure that interviewers are well trained and equipped with such techniques which enable them to collect full information on these variables. Moreover, a rechecking procedure is required to make sure that interviewers do not miss information on these variables to the extend that rigorous analysis of the intermediate variables cannot be carried out.

Another limitation is imposed by the cross-sectional nature of our data. A longitudinal study over two to three generations is

highly desirable and recommended to study the process of assimilation and change in fertility norms of the immigrants.

It may be worth comparing the effects of internal and international migrations on fertility. The number of "long-distance" internal migrants in the present sample is too small to carry out any detailed analysis. An association between the distance (between origin and destination of the migrants) and fertility may be further analyzed in the light of more information on internal migrants.

The present study also suffers from a narrow range of fertility variations - a trait common to the analysis of fertility in developed countries. The social structure variables, conventionally used to explain fertility differentials, do not seem to be important in the context of fertility in the industrialized countries. Perhaps it is time now to consider such questions as, why there are fertility uniformities than differences? Why couples still want to have children? Is this for psychological support or for other kind of social support e.g. maintenance of "identity" or "self".

Another question posed by this study is why there are such small differences in fertility. Perhaps some new independent variables have emerged which have replaced social structural variables. This study makes three important suggestions:

1) Researchers should start looking at factors other than social structural variables to explain variations in the developed countries 2) Fertility studies on special groups, for instance, in Canada on native-Indians, Eskimos, Metis, French Canadians and the newly arrived immigrants will be most relevant. 3) Finally, if a study of this nature is to be conducted again, the researchers are advised to conduct

small scale surveys forcusing indepth on a particular problem. Depth interviews are better for such studies than resorting to large scale surveys based on questionnaires wide in range and shallow in penetration.

In spite of the limitations, the present study shows differential fertility by nativity. It also reveals that nativity is a relevant factor in human reproduction. The effect of nativity on fertility could be better understood with the help of demographic, socio-cultural and economic variables.

REFERENCES

Andrews, F. J. N., Morgan, J. A. Sonquist and L. Klam, 1973
Multiple classification anslysis - a report on computer program for multiple regression using categorical predictors. Ann Arbor: Survey Research Center, University of Michigan.

Balakrishnan, T. R., J. F. Kantner and J. D. Allingham, 1975
Fertility and family planning in a Canadian metropolis Montreal: McGill-Queen's Press.

Beaujot, R., 1975
Ethnic fertility differentials in Edmonton. Ph.D. thesis, Edmonton: The University of Alberta.

Becker, Garry S., 1960
"An economic analysis of fertility" in Universities - National Bureau.

Blake, Judith, 1961
Family Structure in Jamaica: The social context reproduction. New York: Free Press.

Blake, Judith, 1968
"Are babies consumer durable? A critique of economic theory of reporduction motivation", Population Studies 22 (1): 5-41.

Bouma, Garry D. and Wilma J. Bouma, 1975
Fertility control: Canada's lively social problem. Don Mills, Ontario: Longman.

Bumpass, Larry L. and Charles Westoff, 1970
The later years of childbearing. New Jersey: Princeton University Press.

Charles, Enid, 1948
The changing size of family in Canada. Ottawa: King's Printer.

Cherniak, Donna and Allan Feingold, 1974
Birth control handbook. Montreal: Montreal Health Press.

Davis, K. and Judith Blake, 1956
"Social structure and fertility: an analytical framework". Economic Development and Culture Change 4:211-35

Dixon, R., 1933
"Primitive migration", Encyclopedia of Social Science 10:420-425. New York: Macmillan.

Duncan, O. D., 1965
"Farm background and differential fertility", Demography 2:240-49

Duncan, O. D. and A. J. Reis, Jr., 1956
Social characteristics or urban and rural communities. New York: Wiley

Easterlin, R. A., 1969
"Towards a socio-economic theory of fertility: survey of recent research on economic factors in American fertility" in S. J. Behrman et al (Eds.) Fertility and Family Planning. A World View. Ann Arbor: University of Michigan

Ebanks, G. Edward, George, P. M. and C. E. Nobbe, 1974
"Fertility and number of participants in Barbados", Population Studies: 38 (3):449-62

Eisenstadt, S. N., 1954
The absorption of immigrants. London: Routledge and Kegan Paul

Ferenczi, I., 1929
International migration. 1:Statistics. Publication 14. New York: National Bureau of economic research quoted in Petersen, 1972.

Freedman, R., P. K. Whelpton and A. A. Cambell, 1959
Family planning sterility and population growth. New York: McGraw-Hill

Freedman, Ronald and D. P. Slesinger, 1961
"Fertility differentials for indigenous non-farm population of the United States", Population Studies 15:161-173

Freedman, Ronald, 1961-62
"The Sociology of human fertility - a trend report and bibliography", Current Sociology 10/11 (2):35-121

Freedman, Ronald, D. Goldberg, D. Slesinger, 1963
"Current fertility expectations of married couples in the United States", Population Index 29 (1):336-91

Goldberg, D., 1959
"The fertility of two-generation urbanites", Population Studies 12:214-22

Goldberg, D., 1960
"Another look at the Indianapolis data", Milbank Memorial Fund Quarterly 38:23-36

Goldscheider, Calvin, 1971
Population, modernization and social structure. Boston: Little Brown & Co.

Gordon, Milton, M., 1961
Assimilation in American life - the role of race, religion and national origin. New York: Oxford University Press.

Gossman, C. S., C. Nobbe, T. J. Petercelli, C. F. Schmid and T. E. Steahr, 1968
Migration of college and university students in the United States. Seattle: University of Washington Press.

Halli, S. S., 1976
"Effect of urban fertility in India with special reference to Greater Bombay", The Journal of Family Welfare 139:20-25.

Hatt, P. K., 1952
Backgrounds of human fertility in Puerto Rico: A sociological survey. Princeton: Princeton University Press.

Harting, D. and A. J. Hunter. 1971
"Abortion technique and services. A review critique", American Journal of Public Health 61:2085.

Hawthorn, G., 1970
The Sociology of fertility. London: Collier MacMillan.

Henripin, J., 1972
Trends and factors of fertility in Canada. Ottawa: Information Canada.

Hughes, D. R. and E. Kallen, 1974
The anatomy of racism: Canadian dimensions. Montreal: Harvest House.

Kantner, J. F. and P. K. Whelpton, 1952
"Fertility planning and fertility rates by characteristics of migration", Milbank Memorial Fund Quarterly 30: 152-187.

Kiser, C. V., 1938
"Birth rates among rural migrants in cities", Milbank Memorial Fund Quarterly 16:369-381.

Krishnan, P. and Karol J. Krotki, 1976
Growth of Alberta Families Study. Edmonton: The University of Alberta, Population Research Laboratory.

Kumar, J., 1967
"Age at menarche: A comparative study", a paper presented at the 1967 annual meetings of Population Association of America. Quoted in W. Petersen, Population 1967, p. 175.

Landisky, J., 1967
"Occupational determinants of geographical mobility among professional workers", American Sociological Review 32 (2): 253-264.

Lee, E. S., 1966
"A theory of migration", Demography 3:47-57.

Lindberg, J. S., 1930
The background of Swedish immigration to the United States: an economic and sociological study of dynamics of migration. Minneapolis: University of Minnesota Press.

MacMahon, B. and J. Worcestor, 1966
Age at menopause, United States, 1960-1962. National Center for Health Statistics, Series 11, No. 19. Washington, D.C.

Macisco, Jr. J. J. and L. F. Bouvier and M. J. Renzi, 1969
"Migration status, education and fertility in Puerto Rico, 1960", Milbank Memorial Fund Quartertly 47 (2):167-187.

Macisco, Jr. J. J., L. F. Bouvier and R. H. Weller, 1970
"The effect of labour force participation on the relation between migration status and fertility in San Juan, Puerto Rico", Milbank Memorial Fund Quarterly 48 (1):51-70.

Macisco, Jr. J. J. and G. C. Myers (1975)
"Migration and fertility (interaction)", International Migration Review 9:111-114.

Malzberg, B. and E. L. Lee, 1956
Migration and mental disease. New York: Social Science Research Council.

McGinnis, R., (1968)
"A stochastic model of social mobility", American Sociological Review 33 (5):712-722.

Morah, B., 1975
"The demographic consequences of the liberated abortion law in Canada", a paper presented at Canadian Population Society's meetings. Edmonton, Canada.

Morah, B., 1975
Timing of birth in Edmonton. Ph.D. thesis. Edmonton: The University of Alberta.

Marino, A., 1971
"Family, fertility and sex relations in the British Caribbean", Population Studies 24 (2):159-172.

Myers, G. C. and E. W. Morris, 1960
"Migration and fertility in Puerto Rico", Population Studies 20 (1):85-96.

Namboodri, N. Krishnan, 1972
"Some observations on economic framework for fertility analysis", Population Studies 26 (2):185-206.

Nie, N. H., C. H. Hull, J. G. Jenkins, K. Steinbrenner and D. H. Bent, 1975
Statististical Packages for Social Science. New York: McGraw Hill Book Company (2nd ed.)

Park, R. E. and Burgess, E. W., 1921
Introduction to the science of sociology. Chicago: University of Chicago Press

Pearl, R., 1939
The natural history of population. New York: Oxford University Press

Petersen, W., 1975
Population. New York: Macmillan

Rao, N. B., 1973
Fertility and income in Canada: a time series and cross-section analysis. Ph.D. thesis. Edmonton: The University of Alberta

Ravenstein, E. G., 1885
"Laws of migration", Journal of Royal Statistical Society 48:167-235

Ravenstein, E. G., 1889
"Laws of migration", Journal of Royal Statistical Society 52:241-305

Rele, J. R. and T. Kanitkar (1974)
"Residence background and fertility in Greater Bombay", Population Studies 28 (2):299-308

Rindfuss, R. R., 1976
"Fertility and migration: the case of Puerto Rico", International Migration Review 10 (2):191-203

Ritchey, N. P. and C. S. Stokes, 1972
"Residence background, migration and fertility", Demography 9 (2):217-230

Rosenwaike, I., 1973
"Two generation Italian in America: their fertility experience", International Migration Review 7 (3):271-280

Ryder, N. B., 1973
"A critique of the national fertility survey", Demography 10 (4):495-506

Silver, M., 1965-66
"Births, marriages and income fluctuations in the United Kingdom and Japan", Economic Development and Cultural Change 14:302-315.

Stouffer, S. S., 1940
"Intervening opportunities: a theory relating mobility and distance", American Sociological Review 5 (6):847-867

Tarver, J. D. and R. D. McLeod, 1973
"A test and modification of Zipt's hypothesis for predicting interstate migration", Demography 10 (2):259-275

Thomas, D. S., 1938
Research memorandum on migration differentials. New York: Social Science Research Council

Thomlinson, R., 1976
Population Dynamics. New York: Random House

Zarate, A. and A. U. deZarate, 1975
"On the reconciliation of research findings of migrant-non-migrant fertility differentials in urban areas", International Migration Review 9 (2):115-156

Zipf, G. K., 1946
"The $P_1 P_2 / D$ hypothesis: the case of railway express", Journal of Psychology 22:3-8

APPENDIX

Table 5 A.1

Summary of analysis of variance (ANOV) relating the background factors to current family size of native-born women

Source of variation	Sum of Squares	DF	Mean Square	F	Significance of F
Covariate	780.8	3	260.3	206.6	.000
Age	287.4	1	287.4	228.1	.000
Age at first parity	452.7	1	452.7	359.3	.0
Family income	.1	1	.1	.1	.74
Main effects	25.20	9	2.8	2.2	.020
Religion	11.7	2	5.8	4.6	.01
Rural urban background	2.3	2	1.1	0.9	.40
Last occupation	3.8	2	1.9	1.5	.22
Education	10.0	3	3.3	2.6	.05
2-way interaction	30.6	30	1.0	0.8	.75
Religion rural-urban background	2.3	4	0.6	0.4	.77
Religion last occupation	2.2	4	0.5	0.4	.78
Religion education	0.9	6	0.1	0.1	.99
Rural-urban background last occupation	2.6	4	0.6	0.5	.72
Rural-urban background education	12.2	6	2.0	1.6	.14
3-way interaction	24.8	24	1.0	0.8	.71
Religion rural-urban occupation	2.2	6	0.4	0.4	.94
Religion rural-urban education	15.2	9	1.7	1.3	.21
Religion occupation education	3.4	5	.7	.5	.75
Rural-urban occupation education	5.2	4	1.3	1.0	.39
4-way interaction	5.5	3	1.8	1.5	.22
Religion rural-urban occupation Education	5.5	3	1.8	1.5	.22
Explained	866.9	69	12.6	9.9	.00
Residual	146.0	354	1.2		
Total	1312.9	423	3.1		

Table 5 A.2

Summary of analysis of variance (ANOV) relating the background factors to current family size of foreign-born women

Source of variation	Sum of Squares	DF	Mean Square	F	Significance of F
Covariates	206.6	3	68.9	44.8	.00
Age	41.7	1	41.7	27.1	.00
Age at first parity	146.7	1	146.7	95.4	.00
Family income	14.4	1	14.4	9.3	.00
Main effects	16.3	10	1.6	1.1	.41
Religion	6.5	2	3.2	2.1	.13
Rural-urban background	0.3	2	0.1	0.1	.91
Last occupation	2.1	2	1.1	0.7	.50
Education	3.5	3	1.1	0.7	.52
Husband's nativity	2.8	1	2.8	1.8	.18
2-way interactions	37.8	38	1.0	0.6	.92
Religion rural-urban	3.6	4	0.9	0.6	.67
Religion occupation	3.1	4	0.8	0.5	.73
Religion education	2.9	6	0.5	0.3	.92
Religion husband's nativity	2.6	2	1.3	0.8	.44
Rural-urban occupation	2.9	4	0.7	0.5	.76
Rural-urban education	7.0	6	1.2	0.8	.61
Rural-urban husband's nativity	1.7	2	0.8	0.5	.58
Occupation education	0.9	5	0.2	0.1	.98
Occupation husband's nativity	0.8	2	0.4	0.3	.77
Education husband's nativity	0.1	3	0.0	0.0	.99
3-way interactions	49.6	33	1.5	1.0	.52
Religion rural-urban occupation	7.5	7	1.1	0.7	.68
Religion rural-urban education	17.4	9	1.9	1.3	.28
Religion rural-urban husband's nativity	1.6	3	0.5	0.3	.79
Religion occupation education	4.0	4	1	0.6	.63
Religion occupation husband's nativity	1.0	2	0.5	0.3	.71
Religion education husband's nativity	0.2	2	0.1	0.1	.94
Rural-urban occupation education	0.4	3	0.1	0.8	.97
Rural-urban occupation husband's nativity	0.02	1	0.02	0.1	.90
Rural-urban education husband's nativity	1.0	2	0.5	0.3	.71
Explained	310.4	84	3.7	2.4	.00

Table 6 A.1

Therapeutic abortions, abortion rates (per 100 live births) by Province, Canada

Reporting Province	Number of therapeutic abortions 1971	Abortion Rates per 100 live births 1971	Number of therapeutic abortions 1972	Abortion Rates per 100 live births 1972
Newfoundland	78	0.6	133	1.0
Prince Edward Island	39	2.0	45	2.2
Nova Scotia	634	4.5	837	6.2
New Brunswick	146	1.3	183	1.6
Quebec	1,181	2.0	3,847	3.4
Ontario	16,173	12.0	20,272	16.2
Manitoba	827	4.5	1,178	6.8
Saskatchewan	756	4.6	1,043	6.7
Alberta	3,116	9.7	3,887	13.3
British Columbia	7,045	19.1	8,179	23.7
Yukon Territory	8	1.8	48	10.6
Northwest Territory	-	-	44	3.6
All reporting areas	30,923	8.3	38,853	11.2

Source: Statistics Canada, 1971, 1973 and 1974.

THE GROWTH OF ALBERTA FAMILIES STUDY

POPULATION RESEARCH LABORATORY

THE UNIVERSITY OF ALBERTA

Address: _____

_____

Sample Number: ___ - ___ - __ - __ - __
E.D. E.A. No. FA MH

Is this address live? _____
Or dead? _____

How many Households are there at this address? _____

Time: Entered household: _____

Begin interview: _____

Next Address: _____

_____

Is the next address reasonable:

_____

(If not, record details on back page under COMMENTS.)

How many Found Addresses are there?

_____

HOUSEHOLD LIST:

	First Name	Relationship	Age	Sex	Marital Status	Mother Alive	Father Alive	Eligibility	Selection No. *
1				M F	NM M S D W	Y N	Y N		
2				M F	NM M S D W	Y N	Y N		
3				M F	NM M S D W	Y N	Y N		
4				M F	NM M S D W	Y N	Y N		
5				M F	NM M S D W	Y N	Y N		
6				M F	NM M S D W	Y N	Y N		
7				M F	NM M S D W	Y N	Y N		
8				M F	NM M S D W	Y N	Y N		
9				M F	NM M S D W	Y N	Y N		
10				M F	NM M S D W	Y N	Y N		

* CIRCLE THE SELECTED NUMBER

Selection Table Number _____

Type: only long form 1
mail-back 2
Random response 3

"First of all I would like to ask you some questions about your background".

ALL RESPONDENTS

1. In what year were you born? _____

2. What province or country were you born in?

01 Nfld.	05 Que.	09 Alta.	
02 P.E.I.	06 Ont.	10 B.C.	
03 N.S.	07 Man.	11 Yukon	
04 N.B.	08 Sask.	12 N.W.T.	SKIP TO Q 4
13 U.K.	16 Poland	19 France	
14 Germ.	17 Ireland	20 Ukraine	
15 Italy	18 U.S.A.		

Other _____(specify)

3. In what year did you first immigrate to Canada? 19_____

4. Were your parents born in Canada?

1. Both were 3. Mother only
2. Neither were 4. Father only

5. How long have you lived in Edmonton? SKIP TO Q8 - - - - All life ___ # of yrs._____

6. Just before you moved to Edmonton did you live in a

Rural community or farm	1
Town	2
City	3

7. Where did you live most of the time while you were growing up (Say up to age 12)? In a

Rural community or farm	1
Town	2
City	3

8. How many sons and daughters did your parents have? IF ONE SKIP TO Q 10 - - - - Sons_____ - - - - Daughters 1+_____

9. Were you the oldest, second oldest...? _____

10. What is your present marital status? (READ CATEGORIES)

1. Single
2. Separated
3. Widowed
4. Married or living with someone
5. Divorced

IF 4, CIRCLE APPROPRIATE CATEGORY

11. Have you ever been gainfully employed?

Yes 1
SKIP TO Q 13 - - - - - - - - - - No 2

12. I would like to make a list of all the regular jobs that you have held and that have lasted more than six months.

job no.	(i) What kind of job was it?	(ii) What date did you begin? What date did you leave? * FROM month	FROM year	TO month	TO year	SPACE RESERVED FOR CODING	(iii) Was it full time or part-time?	
1							FT	PT
2							FT	PT
3							FT	PT
4							FT	PT
5							FT	PT
6							FT	PT
7							FT	PT
8							FT	PT
9							FT	PT
10							FT	PT
11							FT	PT

* IF RESPONDENT UNABLE TO RECALL DATES ASK THE DURATION OF THE JOB AND RECORD IT

CONTINUE OVERLEAF IF NECESSARY

SKIP TO Q 14 IF R CURRENTLY WORKING

13. Are you now:

a housewife	1
a student	2
unemployed	3
an unpaid family worker	4

Other _____(specify)

14. Would you prefer:

to be working now	1
or not working	2
no preference	3

15. Suppose a woman is offered a good job and can arrange to have her children cared for adequately, what age should her youngest child be before she takes the job on a full time basis?

Age _____

16. What age should her child be before she takes the job on a part time basis?

Age _____

17. What is the highest grade or year of elementary or secondary school you ever attended?

SKIP TO Q 19 - - -

None 0
Yr or Grade 1 2 3 4 5
6 7 8 9 10
11 12 13

18. How many years of schooling have you had since (elementary or secondary) school?

University 0 1 2 3 4 5 6 +
Other 0 1 2 3 +

19. What is the main source from which you usually learn of national and world news? (READ CATEGORIES)

1. T.V.
2. Newspaper
3. Radio
4. Friends
5. Magazines

Other _____(specify)

20. Which do you consider most trustworthy? (use previous codes or specify other) One choice only.

_____

_____

21. What is your religion or denomination?

01 Anglican	07 Pentecostal	
02 Baptist	08 Presbyterian	
03 Greek Orthodox	09 Roman Catholic	
04 Jewish	10 Salvation Army	
05 Lutheran	11 Ukrainian Catholic	
06 Mennonite	12 United Church	IF NONE
00 None Other _____	(specify)	SKIP TO Q 23

22. In the last month how often did you attend religious services (other than weddings, funerals, etc.)? # of times _____

23. To what ethnic or cultural group did you or your ancestor (on the male side) belong on coming to this continent?

01 English	08 Native Indian Non-Band
02 French	09 Netherlands
03 German	10 Norwegian
04 Irish	11 Polish
05 Italian	12 Scottish
06 Jewish	13 Ukrainian
07 Native Indian Band	

Other (specify) _____

24. Was your mother of the same ethnic or cultural group? Yes 1 / No 2

If not, of which group was she? _____

25. What language do you speak at home now?

01 English	06 Hungarian
02 French	07 Dutch
03 German	08 Polish
04 Indian	09 Ukrainian
05 Italian	10 Yiddish

Other (specify) _____

26. In what other languages can you converse (use above coding and/or specify other) _____

_____

"The next group of questions deals with the children you have or might like to have"

27. First of all, have you ever adopted any children or do you have any step children?

	Yes	1
SKIP TO INSTRUCTIONS PRECEEDING Q 29	No	2

28. What were (his/her/their) age(s) on (his/her/their) last birthday? _____

NOTE: IF THE RESPONDENT IS SINGLE, AND WHEN MAIL-BACK OR RANDOM RESPONSE QUESTIONNAIRE IS USED SKIP TO Q 30

29. Are you or have you ever been pregnant?

SKIP TO Q 31	Yes	1
	No	2

IF R HASN'T ADOPTED CHILDREN AND HAS NEVER BEEN PREGNANT ASK:

30. Do you want to have children eventually?

SKIP TO Q 105	Yes	1
SKIP TO Q 113	No	2
SKIP TO Q 113	Don't know	3

31. How many children of your own - those that you have actually borne - now live with you in your own household? _____

32. How many of your children now live somewhere else? _____

33. How many of your own children have died? _____

IF RESPONDENT HAS NO LIVING CHILDREN, GO TO Q 54

"I want to make a list of the names of all these children, in order from eldest to youngest whether they now live with you or somewhere else."

7

CHILD LIST		ELDEST				YOUNGEST
34. What is the name of your (eldest--) child?		_____	_____	_____	_____	_____
35. (If not obvious) Is that a girl or a boy?		M F	M F	M F	M F	M F
36. In what month and year was he/she born?		19___	19___	19___	19___	19___
37. How old was he/she on his/her last birthday?		Yrs.	Yrs.	Yrs.	Yrs.	Yrs.
38. How much did he/she weigh at birth?		_____	_____	_____	_____	_____
	CODES	_____	_____	_____	_____	_____
39. What was the length of pregnancy?		_____	_____	_____	_____	_____
	CODES	_____	_____	_____	_____	_____
40. Would you have preferred this child 1. Earlier 2. Later 3. Same time 4. Not at all.		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
41. Would your husband/partner have preferred this child 1. Earlier 2. Later 3. Same time 4. Not at all.		1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
42. Did you breast feed him/her?		Y N	Y N	Y N	Y N	Y N
43. IF YES: to Q 42 For how many months?		_____	_____	_____	_____	_____
44. Did you smoke during the pregnancy?		Y N	Y N	Y N	Y N	Y N
45. Did you become pregnant while using some method of birth control?		Y N	Y N	Y N	Y N	Y N
46. IF YES: to Q 45 What method of birth control? SKIP TO Q 49		_____	_____	_____	_____	_____
47. IF NO: to Q 45 Did you stop using a method to become pregnant?		Y N	Y N	Y N	Y N	Y N
48. IF YES: to Q 47 How many months did it take to become pregnant after you had stopped?		Mons.	Mons.	Mons.	Mons.	Mons.
49. Is that child living with you now?		Y N	Y N	Y N	Y N	Y N
50. Was there any time you were pregnant before the pregnancy resulting in (name of the eldest)? How many times?		Y N _____				
51. Was there any time you were pregnant between ____ and ____? (Ask of each successive pregnancy.) How many times?			Y N _____	Y N _____	Y N _____	Y N _____
52. Was there any time you were pregnant since the birth of _____ (name of youngest)? How many times?						Y N _____

IF NO OTHER PREGNANCIES SKIP TO Q 68

53. TOTAL OF OTHER PREGNANCIES _____

"Now I would like to ask detailed questions about each of these other pregnancies."

IF RESPONDENT HAS NO LIVE CHILDREN, ASK Q 54. IF R HAS LIVE CHILDREN SKIP TO Q 55.

54. How many times have you been pregnant? _____

		LIST OF OTHER PREGNANCIES					
		First	Second	Third	Fourth	Fifth	Sixth
55.	Did the (1st ...) pregnancy occur while using some method of birth control?	Y N	Y N	Y N	Y N	Y N	Y N
56.	If Yes: What method?	_____	_____	_____	_____	_____	_____
57.	If No: Did you stop using a method to become pregnant?	Y N	Y N	Y N	Y N	Y N	Y N
58.	If yes to Q 57. How many months did it take you to become pregnant?	_____ Mons.	_____ Mons.	_____ Mons.	_____ Mons.	_____ Mons.	_____ Mons.
59.	In what month and year did the (1st ...) pregnancy end? (If pregnancy is current ask when baby is due and GO ON TO Q 60)	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__	_____ Mon. 19__
60.	What was the length of the pregnancy?	_____	_____	_____	_____	_____	_____
	CODES	_____	_____	_____	_____	_____	_____
61.	Did you have a baby then, i.e., did it cry after birth? If No Skip to instructions preceeding Q 67	Y N	Y N	Y N	Y N	Y N	Y N
62.	Was it a boy or a girl?	M F	M F	M F	M F	M F	M F
63.	How much did the child weigh at birth?	_____	_____	_____	_____	_____	_____
	CODES	_____	_____	_____	_____	_____	_____
64.	How old was he/she when he/she died?	No/Yrs	No/Yrs	No/Yrs	No/Yrs	No/Yrs	No/Yrs
65.	Would you have preferred this pregnancy: 1. Earlier 2. Later 2. Same time 3. Not at all?	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
66.	Would your husband/partner have preferred this pregnancy: 1. Earlier 2. Later 3. Same time 4. Not at all?	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
	SKIP TO Q 68						
	NOTE: WHEN USING MAIL-BACK OR [illegible] RESPONSE QUESTIONNAIRE, OMIT Q 67.						
67.	What caused the loss of the pregnancy (miscarriage, stillbirth, abortion)?	M S A	M S A	M S A	M S A	M S A	M S A

FOR EVER MARRIED WOMEN OR LIVING WITH SOMEONE. (IF SINGLE AND PREGNANT SKIP TO Q 70. IF SINGLE AND NOT PREGNANT SKIP TO Q 82.)

68. Did you ever live separated from your husband/partner during your marriage(s) for a period longer than 3 months?

SKIP TO INSTRUCTIONS PRECEEDING Q 70 - - - - - -

Yes 1
No 2

69. For what period?

From	To
_____19__	_____19__
_____19__	_____19__
_____19__	_____19__
_____19__	_____19__

ASK QQ 70 TO 81 IF R IS CURRENTLY PREGNANT (AS INDICATED BY Q 59)

70. Are you hoping for a girl or a boy?

Girl 1
Boy 2
Either 3

71. Is your husband/partner hoping for a girl or a boy?

Girl 1
Boy 2
Either 3

72. How many more children do you want to bear in addition to the one you are now expecting?

IF NONE SKIP TO Q 74 - - - _____

73. How many years from now do you want to have your next child?

SKIP TO Q 79 - - - _____

74. Would you have more children if day care services were inexpensive and readily available?

Yes 1
No 2
Don't know 3

75. Would you have more children if your annual income was increased by $2,000 (that is without a raise in taxes or increased working hours)?

SKIP TO Q 77 - - -

Yes 1
No 2
Don't know 3

76. What would you now do with the extra money?

01 buy a car
02 go on a vacation
03 invest or save the money
04 pay debts
Other _____ _____

77. Would you have preferred to have borne fewer children? — Yes 1; SKIP TO Q 79 - - - - - - - - - - - No 2

78. How many in all would you like to have borne? _____

79. How many (more) children do you think your husband/partner wants you to bear in addition to the one you are now expecting? — IF ONE OR MORE SKIP TO Q 101 _____

80. Would he prefer you to have borne fewer children in all?

Definitely yes 1
Probably yes 2
SKIP TO Q 101 - - - Probably no 3
SKIP TO Q 101 - - - Definitely no 4
SKIP TO Q 101 - - - Don't know 5

81. How many would he prefer you to have borne? SKIP TO Q 101 - - - _____

FOR RESPONDENTS WHO ARE NOT CURRENTLY PREGNANT

82. Have you had an operation which makes it impossible for you to become a mother in the future? — Yes 1; SKIP TO Q 85 - - - - - - - - - - - No 2

83. In what year did that operation occur? 19____

84. Was that operation done at least partly so that you would never become pregnant again? — SKIP TO Q 86 IF CURRENTLY MARRIED OR SKIP TO Q 105 IF NOT CURRENTLY MARRIED: Yes 1; No 2

85. Some women are unable to have a child because they have some physical or medical problem or perhaps because they have reached their change of life. Do you think this may be the case for you?

SKIP TO Q 105 IF NOT CURRENTLY MARRIED OR NOT LIVING WITH SOMEONE

Yes 1
No 2
Uncertain 3

FOR RESPONDENTS CURRENTLY MARRIED (OR LIVING WITH SOMEONE) AND NOT PREGNANT

86. Has your husband/partner ever had an operation which makes it impossible for him to become a father in the future?

SKIP TO INSTRUCTIONS PRECEEDING Q 89

Yes 1
No 2

87. What was the year of that operation?

19____

88. Was that operation done at least partly so you would never become pregnant again?

SKIP TO Q 96

Yes 1
No 2

IF RESPONDENT AND HUSBAND/PARTNER ARE BOTH ABLE TO HAVE CHILDREN (NO TO Q 82 + 86) ASK: QQ 89 - 100. IF ONE OR BOTH ARE NOT ABLE TO HAVE CHILDREN SKIP TO Q 101.

89. Do you want to give birth to (a, another) child?

SKIP TO Q 93

Yes 1
No 2
Don't know 3

90. Would you prefer a girl or a boy (next time)?

Girl 1
Boy 2
Either 3

91. How many (more) children would you like to have?

_____

92. How many years from now do you want to have the (next) one?

SKIP TO Q 98

_____

93. Would you have (more) children if day care services were inexpensive and readily available?

Yes	1
No	2
Don't know	3

94. Would you have (more) children if your annual income was increased by $2,000 (that is without a raise in taxes or increased working hours)?

SKIP TO Q 96 - - -	Yes	1
	No	2
	Don't know	3

95. What would you now do with the extra money?

01 buy a car
02 go on a vacation
03 invest or save the money
04 pay debts
Other _____

96. Would you prefer to have borne fewer children?

	Yes	1
SKIP TO Q 98 - - - - - - - - - -	No	2

97. How many in all would you like to have borne? _____

98. How many (more) children do you think your husband/partner wants you to give birth to? _____

99. Would he prefer you to have borne fewer children in all?

	Definitely yes	1
	Probably yes	2
SKIP TO Q 101 - - -	Probably no	3
SKIP TO Q 101 - - -	Definitely no	4
SKIP TO Q 101 - - -	Don't know	5

100. How many would he prefer you to have borne? _____

FOR MARRIED (OR LIVING WITH SOMEONE), SEPARATED, DIVORCED, OR WIDOWED RESPONDENTS (PREGNANT OR NOT)

101. If you could start life over again, at what age would you prefer to marry (or begin living with someone)? _____

102. Did you have any idea about how many children you wanted when you first married?
- Yes → 1
- No → SKIP TO Q 104 → 2
- Can't remember → SKIP TO Q 104 → 3

103. How many girls and how many boys did you want?
- Girls _____
- Boys _____
- Either _____

104. Did you have any discussion at the time of your marriage with your (present/last) husband on the number of children he wanted?
- Yes → 1
- No → 2
- Can't remember → 3

105. If you could now choose exactly the number of children to have altogether in your lifetime, how many girls and how many boys would you choose?
- Girls _____
- Boys _____
- Either _____

106. How many girls and boys do you think your (present/last) husband/partner would choose?
- Girls _____
- Boys _____
- Either _____

107. Sometime soon couples will be able to choose in advance whether they would like to give birth to a boy or a girl. Would you like to do this?
- Yes → 1
- No → 2
- Don't know → 3

108. What do you think is the desirable number of children for people in your social and economic circumstances?
_____

109. What do you think is the ideal age for a woman to have her first child?
_____

110. And what is the ideal age for her to have her last child?
_____

111. In your opinion how many years or months should there ideally be between children? (If different times given take average).
- Years _____
- Mons. _____

112. Do you expect to live with one of your children in your old age?

Yes	1
No	2
Don't know	3

ALL RESPONDENTS

113. Who do you feel should decide the number of children a woman will have?

Woman	1
Husband or partner	2
Both	3
Will happen without decision	4

Other (specify) _____

114. What do you think is the ideal number of children for the average Canadian family today?

_____

115. How many children would there be in a Canadian family before you would say there are too many?

_____

116. What is your attitude towards couples that decide not to have children?

Understanding	1
Envy	2
No opinion	3
Disapproval	4

Other _____

_____

117. Many couples use some method of birth control to delay or prevent a pregnancy. Do you approve or disapprove of such conduct?

	Approve	1
SKIP TO Q 119 - - -	Disapprove	2
SKIP TO Q 121 - - -	Neither approve or disapprove	3

118. Here is a card with two lists of reasons. Which is the most important reason for your approval in each list?

So that the couple can have the number of sons and daughters they want	1	Small population is good for Canada	6
The couple does not want to have children	2	The government will not have to build as many schools and hospitals	7
So that the woman can work	3	Our natural resources will last longer	8
So that the couple can have their children when they want them	4	Less unemployment with fewer labourers	9
Health of the mother	5	Human beings ought to be able to decide their fate themselves	10
Other _____	SKIP TO Q 121	Other _____	

119. Here is a card with two lists of reasons. Which is the most important reason for your disapproval in each list?

Against religion	1	Large population good for Canada	7
Immoral	2	We need people to develop Canada's natural resources	8
Harmful to health	3	Industries are more efficient when producing for a larger population	9
Too much trouble	4	Less unemployment with more consumers	10
Too expensive	5		
Large family desirable	6		
Other _____		Other _____	

120. Do you approve of the rhythm method?

Yes	1
No	2
Don't know	3

IF R IS NOT MARRIED OR LIVING WITH SOMEONE SKIP TO Q 122

121. Does your husband/partner approve or disapprove of birth control?

Approve	1
Disapprove	2
Don't know	3

122. When do you think is the greatest risk of getting pregnant during the menstrual cycle?

(CIRCLE AS MANY AS GIVEN BY R)

During menstruation	1
During the days preceeding menstruation	2
During the days after menstruation	3
During the mid period of cycle	4
Don't know	5

16

RECORD ANSWERS FOR QQ 123, 124, 126 IN CONTRACEPTIVE CHART BELOW

123. What methods have you heard about that are used by couples to delay or prevent pregnancy?

124. "Here is a card with the names of methods couples use to delay or prevent having a child."

Which methods do you know how to use? You may tell me by number if you wish.

125. In your opinion which method is the most effective (other than abstinence)? One choice. _____

126. What method or methods do you think you or your partner may use in the future?

CONTRACEPTIVE CHART

Method	Q 123 Heard About	Q 124 Know How to Use	Q 126 Future Use
1. Abstinence	1	1	1
2. Rhythm (safe period)	2	2	2
3. Withdrawal	3	3	3
4. Douche	4	4	4
5. Breast feeding	5	5	5
6. Condom (safe)	6	6	6
7. Diaphragm (cap)	7	7	7
8. Foam	8	8	8
9. Jelly or Cream	9	9	9
10. Suppositories	10	10	10
11. Tampon or Sponge	11	11	11
12. IUD (coil, loop, etc.)	12	12	12
13. Pill	13	13	13
14. Injection	14	14	14
15. Male sterilization (vasectomy)	15	15	15
16. Female sterilization (tubal ligation)	16	16	16
17. Abortion	17	17	17
18. Other _____ (specify)	18	18	18
19. None	19	19	19

NOTE: IF THE RESPONDENT IS SINGLE AND WHEN USING THE RANDOM RESPONSE OR MAIL-BACK QUESTIONNAIRE, SKIP TO Q 130.

127. Using the same list of contraceptive methods please tell me what methods you or your partner used during the following years and what methods you are presently using. Again you can tell me by number.

(HAND R CHART OF YEARS AND RECORD ANSWERS ON USAGE CHART)

USAGE CHART

Between Event and Event (Code)	____	____	____	____	____	____	____	____
	____	____	____	____	____	____	____	____
	____	____	____	____	____	____	____	____
Method	1933-1944	1945-1954	1955-1959	1960-1964	1965-1967	1968-1969	1970-1971	1972-Current
1. Abstinence	1	1	1	1	1	1	1	1
2. Rhythm (safe period)	2	2	2	2	2	2	2	2
3. Withdrawal	3	3	3	3	3	3	3	3
4. Douche	4	4	4	4	4	4	4	4
5. Breast feeding	5	5	5	5	5	5	5	5
6. Condom (safe)	6	6	6	6	6	6	6	6
7. Diaphragm	7	7	7	7	7	7	7	7
8. Foam	8	8	8	8	8	8	8	8
9. Jelly or Cream	9	9	9	9	9	9	9	9
10. Suppositories	10	10	10	10	10	10	10	10
11. Tampon or Sponge	11	11	11	11	11	11	11	11
12. IUD (coil, loop, etc.)	12	12	12	12	12	12	12	12
13. Pill	13	13	13	13	13	13	13	13
14. Injection	14	14	14	14	14	14	14	14
15. Male Sterilization (vasectomy)	15	15	15	15	15	15	15	15
16. Female sterilization (tubal ligation)	16	16	16	16	16	16	16	16
17. Abortion	17	17	17	17	17	17	17	17
18. Other _____ (specify)	18	18	18	18	18	18	18	18
19. None used	19	19	19	19	19	19	19	19

IF NO METHOD EVER USED SKIP TO Q 130

128. In cases where R has replied that she and/or her partner has used more than one method in any time interval ask:

During _____ (insert appropriate years) which method was used the most?

(Record answers by circling the method twice in the usage chart.)

129. For each method that R has stopped using ask for each:

	Method	Reasons (use codes or specify other)
Why did you stop using	_____	_____
Why did you stop using	_____	_____
Why did you stop using	_____	_____
Why did you stop using	_____	_____
Why did you stop using	_____	_____

Reasons:

01 To become pregnant
02 Heard about side effects
03 Experienced side effects
04 Inconvenient for me
05 Inconvenient for partner
06 Menopause
07 Sterility
08 Religious reasons
09 Moral reasons
10 Not having intercourse
11 Concern with effectiveness
12 Doctor's recommendation

IF R NO LONGER NEEDS BIRTH CONTROL (i.e. because of sterilization, menopause, etc.) SKIP TO Q 138

IF R HAS NOT USED THE PILL ASK:

130. Would you consider using the pill?

SKIP TO Q 132 - - - Don't know	1
SKIP TO Q 132 - - - Yes	2
No	3

131. Why not?

Hazardous to health	1
Moral or religious reasons	2
Inconvenient to use	3

Other _____

_____(specify)

IF R HAS NOT USED THE IUD ASK

132.	Would you consider using the IUD if it were inexpensive and easy to obtain?	SKIP TO Q 134 - - -	Don't know	1
		SKIP TO Q 134 - - -	Yes	2
			No	3
133.	Why not?		Hazardous to health	1
			Moral or religious reasons	2
			Inconvenient to use	3
	Other _____			
	_____(specify)			
134.	Would you consider having your tubes tied if this were easy and inexpensive to have done?	SKIP TO Q 136 - - -	Don't know	1
		SKIP TO Q 136 - - -	Yes	2
			No	3
135.	Why not?		Hazardous to health	1
			Moral or religious reasons	2
			Might want more children later	3
			Interfere with sexual relations	4
	Other _____			
	_____(specify)			

IF MARRIED OR LIVING WITH SOMEONE ASK: Q 136. IF NOT SKIP TO Q 138

136.	Would your partner consider having an operation to prevent pregnancy?	SKIP TO Q 138 - -	Don't know	1
		SKIP TO Q 138 - -	Yes	2
			No	3
137.	Why not?		Hazardous to health	1
			Moral or religious reasons	2
			Might want more children later	3
			Interfere with sexual relations	4
	Other _____			
	_____(specify)			

138. Where do you obtain most of your information on birth control? One choice.

01 Mother
02 Father
03 Husband or partner
04 Other relatives
05 School
06 Friends & Neighbors
07 Doctor or Nurse
08 Family Planning or Birth Control Clinic
09 Marriage Advisory Centre
10 Religious Advisory Committee
11 Newspapers or Magazines
12 Books
13 Radio
14 T.V.
15 Films
16 No Information
Other _____

139. If a couple decides on sterilization in order to prevent unwanted children should it be the man or the woman who gets sterilized?	Man	1
	Woman	2
	Don't know	3
	Not applicable	4
140. Do you think that our government should make it their business to spread birth control information?	Yes	1
	No	2
	Don't know	3
141. Do you think our government should help make contraception available to people who want it?	Yes	1
	No	2
	Don't know	3
142. Do you think the government of Canada should help other countries with their birth control programs if they ask us?	Yes	1
	No	2
	Don't know	3
143. Do you think the government of Canada should only give aid to those countries that have birth control programs?	Yes	1
	No	2
	Don't know	3

144.	Do you think we should change our laws to discourage couples from having large families? For example, laws referring to income tax exemptions, family allowance and housing priorities.	Yes No Don't know	1 2 3
145.	Should our laws be changed to improve living conditions for larger families?	Yes No Don't know	1 2 3
146.	Do you believe birth control education should be given in high schools?	Yes No Don't know	1 2 3
147.	Do you feel that contraceptives should be made readily available to unmarried persons age 18 or more?	Yes No Don't know	1 2 3
148.	To those aged 16 to 18?	Yes No Don't know	1 2 3
149.	What is your general feeling toward an unmarried woman who has a child and keeps it? Other _____	Sympathy Support Condemnation Indifference	1 2 3 4
150.	What is your general feeling toward an unmarried woman who has a child and gives it up for adoption? Other _____	Sympathy Support Condemnation Indifference	1 2 3 4
151.	Have you ever personally known: an unmarried woman who has had a child and kept it?	Yes No	1 2
152.	And an unmarried woman who has had a child and given it up for adoption?	Yes No	1 2
153.	Should there be additional taxation exemptions in order to make the lot of a single parent easier?	Yes No Don't know	1 2 3

154. As you know, many women choose to end a pregnancy by having an abortion. Out of 100 women you might see on the street, about how many of them would you guess have wanted at some time to get an abortion?

(ALSO WRITE ANSWER INTO BLANK IN Q 155)

_____

155. About how many of these _____ women would you guess have actually had an abortion?

_____

156. Do you think that there should be a law which prohibits abortion - the deliberate interruption of a pregnancy - except when the woman's life is in danger, or do you think that women should be able to obtain a legal abortion if they want one?

Law prohibiting abortion 1
Be able to obtain a legal abortion 2

Other _____

_____(specify)

157. If you became pregnant and abortions were legal and available would you have an abortion under the following conditions?

	Yes	No	Don't Know
- if the pregnancy seriously endangered your physical health?	1	2	3
- if the child was likely to be abnormal?	1	2	3
- if you were unmarried?	1	2	3
- if you had been raped?	1	2	3
- if you could not afford another child?	1	2	3
- if you had all the children you wanted?	1	2	3
- if it would interfere with your career?	1	2	3
- if your husband seriously objected to the child?	1	2	3

158. Do you think the government should help make abortion available to women who want it?

Yes under any circumstance 1
No under no circumstance 2
Don't know 3
Depends on circumstance 4

IF RESPONDENT WAS NEVER MARRIED AND NOT LIVING WITH SOMEONE SKIP TO Q 194

"I would now like to ask some questions about your present/last husband or partner."

159. In what year was your husband born? 19_____

160. What province or country was he born in?

01 Nfld.	05 Que.	09 Alta.	
02 P.E.I.	06 Ont.	10 B.C.	
03 N.S.	07 Man.	11 Yukon	SKIP TO
04 N.B.	08 Sask.	12 N.W.T.	Q 162
13 U.K.	16 Poland	19 France	
14 Germ.	17 Ireland	20 Ukraine	
15 Italy	18 U.S.A.		

Other _____(specify)

161. In what year did he first immigrate to Canada? 19_____

162. Were your husband's parents born in Canada?

1. Both were 3. Mother only
2. Neither were 4. Father only

163. How long has/did he live(d) in Edmonton? All life __ # of yrs._____

164. How many sons and daughters did your husband's parents have? Sons 1+_____ Daughters _____

165. What was the highest grade or year of elementary or secondary school your husband ever attended? SKIP TO Q 167 - - - None 0 Yr. or Grade 1 2 3 4 5 6 7 8 9 10 11 12 13

166. How many years of schooling did he have since (elementary or secondary) school? University 0 1 2 3 4 5 6 + Other 0 1 2 3 +

EVER MARRIED RESPONDENTS

167. What is/was your husband's religion or denomination?

01 Anglican	07 Pentecostal
02 Baptist	08 Presbyterian
03 Greek Orthodox	09 Roman Catholic
04 Jewish	10 Salvation Army
05 Lutheran	11 Ukrainian Catholic
06 Mennonite	12 United Church
00 None	

Other _____(specify)

168. To what ethnic or cultural group did your husband or his ancestor (on the male side) belong on coming to this continent?

01 English	08 Native Indian-Non-Band
02 French	09 Netherlands
03 German	10 Norwegian
04 Irish	11 Polish
05 Italian	12 Scottish
06 Jewish	13 Ukrainian
07 Native Indian-Band	

IF RESPONDENT IS NOT CURRENTLY MARRIED ASK Q 169 AND 170. IF CURRENTLY MARRIED SKIP TO Q 171.

169. Here is a card showing amounts of income. Please indicate by number what group would apply to your income before taxes in 1973? _____

170. What was your or your family's annual income for each of the following years?

	Don't Know	Refused to Answer	Question Not Applicable	Own Income or Family Income	
1970 _____	1	2	3	OI	FI
1967 _____	1	2	3	OI	FI
1964 _____	1	2	3	OI	FI
1961 _____	1	2	3	OI	FI

SKIP TO Q 194

171. Is your husband gainfully employed at present? SKIP TO Q 173 - -
Yes 1
No 2

172. Is he:
a student 1
unemployed 2
retired 3
an unpaid family worker 4

Other _____(specify)

173. During the last twelve months how many weeks was he gainfully employed?
_____

174. What type of work does/did he do?

_____
(obtain specific information)

_____
(reserved for coding)

175. Here is a card showing amounts of income. Please indicate by number what group would apply to your husband's income before taxes in 1973?
_____
Don't know 1
Refused to answer 2

176. What group would apply to your income before taxes in 1973?
_____
Don't know 1
Refused to answer 2

177. Which group would the total income of your family fall into for 1973? (Before taxes)
_____
Don't know 1
Refused to answer 2

178. What was your family's annual income for each of the following years?

	Don't Know	Refused to Answer	Question Not Applicable
1970 _____	1	2	3
1967 _____	1	2	3
1964 _____	1	2	3
1961 _____	1	2	3

179. When did you and your present husband or partner start living together? _____19_____

180. How old were you at the time? _____

181. How old was he at the time? _____

182. Have you been married more than once? Yes 1; No 2 — SKIP TO Q 190 - - -

183. How many times have you been married altogether? _____

			First	Second	Third	Fourth
184.	When did your (1st, 2nd...) marriage begin?	Yr	19__	19__	19__	19__
185.	How old were you at that time?	Age	____	____	____	____
186.	How old was he at that time?	Age	____	____	____	____
187.	How did the marriage end? 1. Death 2. Divorce 3. Other		1 2 3	1 2 3	1 2 3	1 2 3

If Death:

188. When did he die? Yr 19__ 19__ 19__ 19__

If Divorce or Other:

189. When did you stop living together? Yr 19__ 19__ 19__ 19__

190. Suppose your husband/partner lost his job tomorrow and neither he nor you could find work for one month. Do you feel that you could manage to pay all your usual bills for that month out of the family savings?
Yes 1; No 2; Don't know 3

191. How often do you deny yourself and your family things you and they would like because of provisions you are making for the future? Would you say: (READ CATEGORIES)
Often 1; Sometimes 2; Seldom or Never 3

192.	How about your husband/partner, how often does he do this? Would you say: (READ CATEGORIES)		Often Sometimes Seldom or Never	1 2 3
193.	In general what kind of success do you feel you and your husband/ partner are having financially? (READ CATEGORIES)		Very good Good Fair Poor	1 2 3 4

FOR ALL RESPONDENTS

194.	Would you (and your partner) be willing to provide the major source of financial support if your child was attending post secondary education?	SKIP TO Q 196 - - -	Yes No Don't know	1 2 3
195.	How much, if any, would you be willing to contribute?	IF NONE SKIP TO Q 197	_____	
196.	How long would you be willing to contribute this support?		_____ (Years)	
197.	Whatever it is you feel you want out of life, how closely do you feel that you are approaching it?		Very closely Fairly closely Only to some extent Not at all	1 2 3 4

OPINIONS

We would like to get your opinion on some matters concerning family life and the status and rights of women. Please tell me if you strongly agree, agree, don't know, disagree, or strongly disagree with the following statements. The first is:

		Strongly Agree	Agree	Depends on Circumstances Uncertain Don't Know (CIRCLE NUMBER)	Disagree	Strongly Disagree
198.	A man can make long range plans for his life, but a woman has to take things as they come.	1	2	3	4	5
199.	A pre-school child is likely to suffer if his mother works.	1	2	3	4	5
200.	A working mother can establish just as warm and secure a relationship with her children of elementary school age as a mother who does not work.	1	2	3	4	5
201.	It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family.	1	2	3	4	5
202.	If a woman wants a career, she should space the children to suit the career or not have any children at all.	1	2	3	4	5
203.	Women are much happier if they stay at home and take care of their children.	1	2	3	4	5
204.	Young girls are entitled to as much independence as young boys.	1	2	3	4	5
205.	Sex seems to exist mainly for the man's pleasure.	1	2	3	4	5

		Strongly Agree	Agree	Depends on Circumstances Uncertain Don't Know	Disagree	Strongly Disagree
		(CIRCLE NUMBER)				
206.	Women should be considered as seriously as men for jobs as executives or politicians.	1	2	3	4	5
207.	If anything serious happened to one of the children while the mother was working, she could never forgive herself.	1	2	3	4	5
208.	A woman's job should be kept open for her when she is having a baby.	1	2	3	4	5
209.	You usually find the happiest families are those with a large number of children.	1	2	3	4	5
210.	Many of those in women's rights organizations today seem to be unhappy misfits.	1	2	3	4	5
211.	There should be free child-care centers so that women could take jobs.	1	2	3	4	5
212.	The world population problem is serious.	1	2	3	4	5
213.	Canada's immigration laws are too lax and admit too many people unsuited to our culture.	1	2	3	4	5
213a.	Women in authority should have the right to fire men.	1	2	3	4	5

"We would like to record a few characteristics of your home".

214.	Do you have a colored T.V.?	Yes	1
		No	2
215.	Do you have a dishwasher?	Yes	1
		No	2
216.	Two or more cars?	Yes	1
		No	2
217.	What is the number of rooms in your home? (excluding bathrooms, clothes closets, pantries, halls and rooms solely used for business purposes)	_____	
218.	How many books would you say you have? 10, 25, 50, 100 ...	_____	

(INTERVIEWER: FILL IN)

219.	(IF R REFUSED TO GIVE TOTAL FAMILY INCOME) Estimate total family income for 1973.	_____ ESTIMATED INCOME	
220.	Respondent's cooperation was:	Very good	1
		Good	2
		Fair	3
		Poor	4
221.	Other persons present at interview were:	No one	1
		Children under 6	2
		Older children	3
	(CIRCLE AS MANY AS NECESSARY)	Husband	4
		Other relatives	5
	NO. OF PEOPLE PRESENT: _____	Other adults	6
222.	Is this interview of questionable quality?	FILL IN Q 223 - - - Questionable quality	1
		SKIP TO COMMENTS - - Generally adequate	2
		SKIP TO COMMENTS - - High quality	3
223.	(IF "QUESTIONABLE QUALITY") Reason for this:	Spoke English poorly	1
		Evasive, suspicious	2
		Drunk, mentally disturbed	3
		Had poor hearing or vision	4
		Low intelligence	5
	TURN NOW TO BACK COVER	Confused by frequent interruptions	6
		Bored or uninterested	7

RECORD OF CALLS

Call Number	Date	Time of Call	Results (Household Absent, Address Dead, Refusal, Other... / Completed, No One Eligible, Selected Person Unavailable)

COMMENTS: Please note anything essential to the interpretation of this interview.

Language of Interview? _____

Time at end of interview: _____ _____

Length of interview (omitting major interruptions): _____

_____
Signature of Interviewer

_____
Interviewer Number